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SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF ORANGE, CIVIL COMPLEX CENTER

ORANGE COUNTY WATER DISTRICT,

Plaintiff,

vs.

NORTHROP CORPORATION; NORTHROP GRUMMAN CORPORATION; AMERICAN ELECTRONICS, INC.; MAG AEROSPACE INDUSTRIES, INC.; GULTON INDUSTRIES, INC.; MARK IV INDUSTRIES, INC.; EDO CORPORATION, AEROJET-GENERAL CORPORATION; MOORE BUSINESS FORMS, INC.; AC PRODUCTS, INC.; FULLERTON MANUFACTURING COMPANY; FULLERTON BUSINESS PARK LLC; and DOES 1 through 400, inclusive,

Defendants.

CASE NO. 04CC00715

NOTICE OF ISSUANCE OF STATEMENT OF DECISION

Judge: Hon. Kim Dunning
Dept.: CX-104

[Assigned for All Purposes to: The Hon. Kim Dunning, Dept. CX-104]

Action Filed: December 17, 2004
Trial Date: February 10, 2012

TO ALL PARTIES AND COUNSEL:

PLEASE TAKE NOTICE THAT a Statement of Decision addressing the issues in the

/ / /

/ / /

phase one court trial as to all Trial Defendants was issued on October 29, 2013. A copy of the October 29, 2013 Minute Order with the Statement of Decision is attached hereto as Exhibit "A".

DATED: November 7, 2013

LEWIS BRISBOIS BISGAARD & SMITH LLP

By: */s/ Thomas A. Teschner*
Thomas A. Teschner
Attorneys for Defendant Northrop Grumman Systems Corporation (erroneously named as Northrop Corporation and Northrop Grumman Corporation)

EXHIBIT “A”

EXHIBIT “A”

SUPERIOR COURT OF CALIFORNIA,
COUNTY OF ORANGE
CIVIL COMPLEX CENTER

MINUTE ORDER

DATE: 10/29/2013 TIME: 12:40:00 PM DEPT: CX104

JUDICIAL OFFICER PRESIDING: Kim G. Dunning
CLERK: Cheryl Henderson
REPORTER/ERM:
BAILIFF/COURT ATTENDANT:

CASE NO: **04CC00715** CASE INIT.DATE: 12/17/2004
CASE TITLE: **ORANGE COUNTY WATER DISTRICT VS NORTHROP CORPORATION**
CASE CATEGORY: Civil - Unlimited CASE TYPE: Toxic Tort/Environmental

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EVENT ID/DOCUMENT ID: 71832702
EVENT TYPE: Chambers Work

APPEARANCES

There are no appearances by any party.

The proposed separate statement of decision for Defendant CBS was taken under submission on August 5, 2013. The proposed statement of decision that would apply to all Trial Defendants, including CBS, was taken under submission on September 23, 2013.

The court has now issued one Statement of Decision addressing the issues in the phase one court trial as to all Trial Defendants.

Statement of Decision is attached.

The clerk is directed to electronically file this minute order and notify Duane C. Miller, counsel for the plaintiff and R. Gaylord Smith, counsel for defendant Northrop Corporation telephonically.

The clerk is not directed to serve any hardcopies by mail.

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF ORANGE, CIVIL COMPLEX CENTER

ORANGE COUNTY WATER DISTRICT,

Plaintiff,

vs.

NORTHROP CORPORATION, NORTHROP GRUMMAN CORPORATION; AMERICAN ELECTRONICS, INC.; MAG AEROSPACE INDUSTRIES, INC.; GULTON INDUSTRIES, INC.; MARK IV INDUSTRIES, INC.; EDO CORPORATION; AEROJET-GENERAL CORPORATION; MOORE BUSINESS FORMS, INC.; AC PRODUCTS; FULLERTON MANUFACTURING COMPANY; FULLERTON BUSINESS PARK LLC and DOES 1 through 400, inclusive,

Defendants.

AND RELATED CROSS ACTIONS.

CASE NO. 04CC00715

STATEMENT OF DECISION

[C.C.P. § 632; C.R.C. Rule 3.1590]

Dept: CX-104
Judge: Hon. Kim G. Dunning

Complaint Filed: December 17, 2004
Trial Date: February 10, 2012

The above-entitled case came on regularly for the Phase One Court Trial on February 10, 2012 in Dept. CX-104, the Honorable Kim G. Dunning presiding. Plaintiff Orange County Water District (the "District") was represented by its counsel, Duane C. Miller and Michael D. Axline of Miller, Axline & Sawyer and Edward Connor of Connor, Fletcher & Williams, LLP. Defendant Alcoa Global Fasteners, Inc. ("AGFI") was represented by its counsel, René P. Tatro and David Sadwick of Tatro Tekosky Sadwick, LLP and Edward P. Sangster, Matthew G. Ball and Jason Haycock of K&L Gates, LLP. The Arnold Engineering Company ("Arnold") was represented by its counsel Steven J. Elie, Donald E. Bradley, and Alex H. Aharonian of Musick, Peeler & Garrett, LLP. Defendant CBS Broadcasting, Inc. ("CBS") was represented by Lawrence R. Ramsey and Claire Dietrich of Bowman & Brooke, LLP. Defendant Crucible Materials Corporation was represented by Paul D. Rasmussen of Dongell, Lawrence, Finney, LLP. Defendant Northrop Grumman Systems Corporation was represented by R. Gaylord Smith and Ernest Slome of Lewis Brisbois Bisgaard & Smith, LLP (collectively the "Defendants" or "Trial Defendants"). Counsel for Mag Aerospace Industries also appeared, but he court granted its motion under code of Civil Procedure section 631.8 at the close of plaintiff's case in chief.

At trial, the court saw and heard testimony and exhibits from percipient and expert witnesses and received other evidence, including deposition testimony excerpts designated by the parties. Counsel also presented written and oral argument.

On December 12, 2012, the court issued a tentative decision and invited briefing by the parties on various additional issues not covered in the Court's tentative decision. Following additional briefing and oral argument, the Court issued a Supplemental Tentative Decision on May 10, 2013.

All counsel agreed to a schedule for the preparation of a proposed statement of decision by defense counsel, objections and counter-proposals by the plaintiff's counsel, and a reply. The court initially contemplated a separate Statement of Decision for CBS,

but has determined that one Statement of Decision is appropriate and timely.

The District and the Trial Defendants presented evidence concerning a number of other entities, including some that were not sued in this action, former defendants that had settled, and current cross-defendants. Before the phase one court trial, the court severed the cross-complaints against all cross-defendants except the District. Cross-defendants other than the District did not participate in this phase of the proceedings. While evidence adverse to some of those cross-defendants was received and was persuasive as to the issues presented in the phase one court trial, nothing in this Statement of Decision is intended to be constitute a finding as to them or to be binding on any parties in this action other than Plaintiff/Cross-Defendant and the Trial Defendants/Cross-Complainants.

The purpose of a statement of decision is to "explain[ ] the factual and legal basis" for the court's decision "as to each of the principal controverted issues at trial." To this end, a statement of decision focuses on the issues, with reference to some of the evidence, reasonable inferences from evidence and law upon which the court relied in rendering its decision. In the court's view, a statement of decision need not summarize all the trial evidence or recite all the evidentiary facts the court found to be true. Per the court's explicit request, Trial Defendants submitted a thorough and over-inclusive proposed statement of decision. This Statement of Decision is a somewhat streamlined version. It is not meant to be, nor should it be construed as, a rejection by the court of the many evidentiary facts defendants included.

Plaintiff's objections and proposed statement of decision missed the mark in this regard. Both documents strongly conveyed Plaintiff's disagreement with the result reached by the court, but they were imbued with argument and not couched in terms useful to the court as it considered the proposed statement of decision submitted by the Trial Defendants. Moreover, Plaintiff's proposed statement of decision was simply a lengthy ruling contrary to the court's tentative decision. As with plaintiff's objections,

plaintiff's proposed statement of decision provided a re-argument and additional argument, not suggestions for a proposed a statement of decision based on the court's announced tentative decision. Accordingly, the court has determined that a hearing on the objections is not necessary.

Plaintiff also filed a 210-page document it titled "Plaintiff's Responses to Certain allegations in Defendants [*sic*] Statement of Decision [Proposed]." Plaintiff did not seek permission to file this document. It contains no suggestions or counter proposals for the statement of decision, but appears to be a piecemeal legal argument in the format of a summary judgment separate statement.

Plaintiff also misconstrues the court's findings concerning the North Basin Groundwater Protection Project ("NBGPP"). As Plaintiff noted, this court plays no role in the District's decision to develop and implement such a plan. This court does play a role, however, when the District sues to require others to pay for the plan. The reasonableness and the necessity for the plan, as proposed, in relation to the defendants being sued to pay for it are issues properly before the court.

The tentative decision, as supplemented, is the decision of the Court. Judgment is to be granted in favor of each Trial Defendant on the first, second, and sixth causes of action of Plaintiff's First Amended Complaint and in favor of all Cross-Complainants/ Defendants against the Cross-Defendant/Plaintiff on those portions of the Second Amended Cross-Complaint seeking declaratory relief that were tried in the Phase One Court trial. Since the court finds no Defendant liable for any past or future District costs in the NBGPP area, there will be no need to render a judgment on Defendants' claim for equitable indemnity.

The factual and legal bases for the court's decision are as follows:

I. BACKGROUND

A. The Orange County Water District

The District is a "special water agency" with specific rights and duties as outlined

in the California Water Code. (Cal. Water Code App. § 40-1.) The boundaries of the District fall entirely within the County of Orange (March 27, 2012, TT 432:3-9) and the District is charged with managing, replenishing, regulating, and protecting groundwater supplies within its geographic area. (Cal. Water Code App. § 40-2 (6).)

The District is statutorily authorized to "prevent interference [with] . . . , diminution . . . [or] pollution or contamination" of that water supply. (*Id.* at § 40-2 (9).) The District is also empowered "to conduct any investigations of the quality of the surface and groundwaters within the District . . . to determine whether those waters are contaminated or polluted" and to "expend available funds to perform any cleanup, abatement or remedial work required under the circumstances." (*Id.* at § 40-8 (a), (b).)

B. The North Basin Groundwater Protection Project (NBGPP)

The NBGPP has been a work in progress for many years. It was envisioned in the 2000 Draft Focused Feasibility Study ("FFS") prepared by the District's consultants, GeoSystems, as a project to remove VOCs from the shallow aquifer in the Fullerton-Anaheim area that is generally north of the 91 freeway, west of the 57 freeway, east of Magnolia and south of Chapman Avenues. (Ex. 11771, FFS.) The originally targeted VOCs (identified for convenience by their acronyms) were TCE; PCE; 1,1,1-TCA; and DCE (sometimes 1, 1 DCE). These VOCs were allegedly released by a number of entities over a period of decades in the 20th century.

The initial proposal was to install extraction wells at the leading edges of various mapped VOC plumes (generally to the west/southwest of the plumes' points of origin), extract water from the shallow aquifer, treat it in place, and then reinject the treated water into the deep/principal aquifer, where it would become part of the drinking water supply. It was never contemplated that the NBGPP would remove all the VOCs at issue in this lawsuit from the shallow aquifer. Rather, the District is relying on monitored natural attenuation for any contamination less than five times the maximum contaminant level (MCL) for the VOC. (May 3, 2012, TT 2080:2-13, testimony of District hydrogeologist

Dave Mark ["We recognized there is a certain degree of attenuation of the contaminants as they migrate, particularly vertically, and we felt that we would initially target the higher concentrations, the 5 to 10 times MCL's, notification levels, for containment and rely on a certain degree of attenuation to mitigate the residual, so that by the time it reaches potable parts of the aquifer that are used for potable supplies, the concentrations are below MCL's and notification levels. "We're not trying to contain every drop of contamination. We're not even trying to contain all the contamination above the MCL's notification levels."]) The project, therefore, was designed to lower the levels of VOCs in the shallow aquifer to reduce or eliminate the potential for them to migrate into the deep, drinking water aquifer.

The current plan still targets the above-identified VOCs and maintains the 5xMCL goal for the VOCs, but now includes another several more VOCs, (1, 4-dioxane, TCP and DCA) as well as nitrates and perchlorates. The process for removing nitrates and perchlorates from water is more complicated and costly than that for VOCs. The extraction and "treat in place" model has now been abandoned. While the already-in-place extraction wells will still pump contaminated water from the shallow aquifer to the surface, that water now will be transported in pipes upgradient to a central treatment facility, treated, and then re-injected into the shallow aquifer. These cycles will repeat for a projected 30 years. At that time, the District's retained hydrogeologist expert, Dr. Graham Fogg, estimated one may expect that one-third of the current contaminants in the NBGPP area will be removed. (June 19, 2012 TT 3827:3-12.) The new NBGPP does not call for the treated water to be injected into the deep aquifer.

The NBGPP is not a soil clean-up project. Other state and local agencies, including the California Regional Water Quality Control Board, Santa Ana Region (the "Regional Board"), have jurisdiction over all soil clean-up. (Ex. 821-2; July 16, 2012 TT 4517:8-4518:20; 4591:26-4592:8; 4593:17-24.)

Nor is the NBGPP intended to clean drinking water supplies. Drinking water in this

area comes from the deep/principal aquifer, not the shallow aquifer where the extraction and treatment will occur. A stated purpose of the NBGPP is to stop migration of VOCs through soil into the shallow aquifer via a mechanism called hydraulic containment. (April 26, 2012 TT 1475:16-26.) The shallow aquifer in the NBGPP area begins at the water table, approximately 130 feet below ground surface and extends to a depth of approximately 250 feet. (RT 04/12/12 at 693:15 – 694:14). The shallow aquifer is not used as a water supply. The deep/principal aquifer, on the other hand, begins at various points below the shallow aquifer (separated from the shallow aquifer by soils of various porosities) to an ultimate depth of approximately 1,200 or 1,500 feet. (RT 04/12/12 at 693:15 – 694:14). Drinking water wells typically tap into the principal aquifer. (RT 04/12/12 at 693:15 – 694:14).

Groundwater is found below the water table, in the shallow and deep aquifers. Immediately beneath the surface and above the water table, where the shallow aquifer beings, is the vadose zone, an area of unsaturated soil. (April 9, 2012 TT at 501:7-18 ["There's also water that is present above the water table. It's contained in the pores. But if you drilled a well into that, because the water is not completely filling the pore space, it will not enter a well."].) There may be pockets of saturated soil in the vadose zone. Those pockets lie above clay layers and non-porous, low-permeability soils. These water pockets are called perched zones. (April 9, 2012 TT 513:1-13.)

Although the District installed extraction wells in the shallow aquifer at its own expense and drafted proposals and plans for the NBGPP, no remediation has yet occurred. (May 3, 2012 TT 2194:6-2197:15.) The evidence in the phase one trial was without dispute: nothing the District has done to date and no costs it has expended have resulted in any contamination being cleaned up, contained, or abated. Extraction wells are in place, but not pumping. (June 21, 2012 TT 4010:21-4011:1; May 3, 2012 TT 2194:6-2195:7.) Plans for the centralized treatment facility are not complete; they were not approved when trial began last year. (May 3, 2012 TT 2195:11-22; 2196:22-

2197:15.)

C. Pleadings

The District filed this suit on December 17, 2004, against twelve named defendants. On April 11, 2005, the District filed a first amended complaint ("FAC") adding several more named defendants. The cross-complaint by the Defendants was asserted against an additional forty plus cross-defendants, including the District itself. Before the phase one court trial, several defendants entered into settlements with the District. Those settlements were found to be in good faith. (Code civ. Proc., § 877.6.) In addition, during the phase one trial, the Court granted a motion for judgment pursuant to Code of Civil Procedure section 631.8 as to defendant MAG Aerospace Industries. The court took the motion for judgment pursuant to Code of Civil Procedure section 631.8 by CBS under submission and subsequently denied it.

The remaining five Trial Defendants – AGFI, Arnold, CBS, Crucible, and Northrop – each owned and/or operated one or more manufacturing businesses in the North Basin of Orange County. The suit alleges that Defendants' various manufacturing operations in the North Basin caused and contributed to shallow groundwater contamination in the North Basin, resulting in damages to the District.

The operative complaint is the District's FAC, which alleges causes of action under the OCWD Act and the HSAA as well as claims for declaratory relief, nuisance and trespass. The District alleges it suffered injury due to the acts or omissions of the defendants, which allegedly resulted in releases of volatile organic chemicals/compounds ("VOCs") into the groundwater. The District alleges damages to investigate, monitor, address, abate or contain VOCs allegedly originating from Defendants' sites and/or former sites. Before trial, the Court granted defendants' motions for summary adjudication of issues as to the negligence cause of action, finding the statute of limitations had run.

Northrop filed a cross-complaint on August 19, 2005, and thereafter, a second

amended cross complaint ("SACC") on May 16, 2008. Subsequently, the Court ordered that Northrop's SACC be deemed to have been filed by all Trial Defendants.

D. The Phase One Trial

The phase one court trial commenced in February 2012 and covered:

1. The District's first cause of action was for reimbursement "of the reasonable costs actually incurred . . . " under the Orange County Water District Act (Water Code – Appendix § 40, *et. seq.*);

2. The second cause of action was for recovery of Plaintiff's "costs, expenses, losses and other damages caused by the environmental contamination which was has been released and continues to be released into the environment, and which migrated and continues to migrate, from defendants' facilities and sites" under the Carpenter-Presley-Tanner Hazardous Substance Account Act ("HSAA"; Health & Saf. Code, § 25300 *et seq.*; FAC, ¶ 41, p. 11:1-4);

3. The sixth cause of action was for declaratory relief, seeking a declaration that Defendants are jointly and severally responsible for future remediation costs to implement the NBGPP and a judgment that apportions future District costs among the Defendants;

4. The causes of action in the Second Amended Cross-Complaint for declaratory relief and equitable indemnity by each Defendant against the District sought a declaration that no Defendant had any liability to Plaintiff based on activities at any site "for damages, response costs, or other costs claimed in this action by Plaintiff . . ."

a. "under the Orange County Water District Act..."

b. "under HSAA (California Health & Safety Code § 25300, *et seq.* arising out of the presence or release, or threatened release of hazardous substances from [each Defendant's site(s)]...."

Each Defendant also sought equitable indemnity to the extent it is found liable for

the District's costs of remedial action in the NBGPP area.

In terms of damages, the District sought all costs for the investigation and development of the NBGPP and the cost for the extraction wells. The District's claim that it was entitled to be reimbursed by the Trial Defendants for salaries and benefits paid to District employees who worked on the NBGPP was dropped during the phase one trial. But the money already spent by the District, while significant, is less than two percent of the total amount it eventually intends to spend on the NBGPP. The real target in this phase of the proceedings was a judicial declaration that each Trial Defendant would be jointly and severally liable for all future remediation costs associated with the NBGPP or, alternatively, that each Trial Defendant would be assigned a percentage of liability for those future costs as they were incurred. As noted *ante,* the District's proposed plan, which had not been finally approved by the time the phase one court trial began, spans a treatment period of approximately 30 years..

II. ORANGE COUNTY WATER DISTRICT ACT

The Orange County Water District Act is found in chapter 40 of the Water Code Appendix. Section 40-8 reads in full:

> Investigations of quality of surface and groundwaters; cleanup; liability
>
> Sec. 8. (a) The district may conduct any investigations of the quality of the surface and groundwaters within the district which the district determines to be necessary and appropriate to determine whether those waters are contaminated or polluted.
>
> (b) The district may expend available funds to perform any cleanup, abatement, or remedial work required under the circumstances which, in the determination of the board of directors, is required by the magnitude of the endeavor or the urgency of prompt action needed to prevent, abate, or contain any threatened or existing contamination of, or pollution to, the surface or groundwaters of the district. This action may be taken in default of, or in addition to, remedial work by the person causing the contamination or pollution, or other persons. The district may perform the work itself, by contract, or by or in cooperation with any other governmental agency.
>
> (c) If, pursuant to subdivision (b), the contamination or pollution is cleaned up or contained, the effects thereof abated, or in the case of threatened contamination or pollution, other necessary remedial action is taken, the person causing or threatening to cause that contamination or pollution shall be liable to the district to the extent of the reasonable costs actually incurred in cleaning up or containing the contamination or pollution, abating the effects of the contamination or pollution, or taking

> other remedial action. The amount of those costs, together with court costs and reasonable attorneys' fees, shall be recoverable in a civil action by, and paid to, the district. In any such action, the necessity for the cleanup, containment, abatement, or remedial work, and the reasonableness of the costs incurred therewith, shall be presumed, and the defendant shall have the burden of proving that the work was not necessary, and the costs not reasonable.

As noted above, under this statutory authority, the District sought a judgment not just for the recovery of the money it has already spent on the NBGPP, but for all the money it will spend over the next 30 plus years. Since the NBGPP had not been approved by the time the phase one trial began and the District had not yet committed to proceeding with it in any event, application of the statutory presumption of necessity and the reasonableness of the cost presented a challenge for the court and counsel. This is particularly so because the statute provides the District will first spend its own money and actually remediate, clean up, contain, or abate the identified contamination before it seeks reimbursement. The statutory scheme does not appear to contemplate that the District might propose a future containment plan and then sue to shift all future costs of that plan to parties causing or threatening to cause the contamination.

Whether the statutory presumptions of necessity and reasonableness applied or not, the Trial Defendants demonstrated the NBGPP was neither necessary nor reasonable in terms of cost insofar as the VOC, nitrate and perchlorate contamination they were being sued to pay for. In any event, the District had the burden to prove by a preponderance of the evidence that each Trial Defendant caused or threatened to cause groundwater contamination and that but for each defendant's conduct, the NBGPP would not have been necessary. Stated another way, the District had the burden to prove that each Trial Defendant's conduct was a substantial factor in the decision to develop the NBGPP. The District did not carry its burden.

A. <u>Conditions for Imposition of Liability under the Orange County Water Act Were Not Met</u>

The clause in section 40-8, subsection (c) of the Orange County Water District Act that imposes liability on "the person causing or threatening to cause [ ] contamination or

pollution . . . to the extent of the reasonable costs actually incurred . . . ," is conditional, not absolute. The District's expenditure of funds by itself is not enough to trigger liability and reimbursement (assuming all other factors are satisfied). Liability is imposed and the reimbursement right is established only if one of two conditions is satisfied.

The first condition is: "if, pursuant to subdivision (b), the contamination or pollution is cleaned up or contained, the effects thereof abated . . . ." The evidence in the phase one trial was without dispute: nothing the District has done to date and no costs it has expended have resulted in any contamination being cleaned up, contained, or abated. Extraction wells are in place, but not pumping. (June 21, 2012 TT 4010:21-4011:1; May 3, 2012 TT 2194:6-2195:7.) Plans for a centralized treatment facility are not complete, much less approved. (May 3, 2012 TT 2195:11-22; 2196:22-2197:15.)

The second conditional trigger concerns threatened contamination: "or in the case of threatened contamination or pollution, other necessary remedial action is taken . . . . " The threat of contamination was discussed at length throughout the phase one trial. The word "threatened" and the phrase "threatened contamination," as used in Appendix section 40-8 of the Water Code, are not defined.

The word "threaten" is defined, however, in Water Code section 13304, subdivision (e), of the Porter-Cologne Water Quality Control Act (Water Code, § 13020, et seq.): "'Threaten,'" for purposes of this section, means a condition creating a substantial probability of harm, when the probability and potential extent of harm make it reasonably necessary to take immediate action to prevent, reduce, or mitigate damages to persons, property, or natural resources."

The concept of "immediate action" dovetails with the notion of a threat and the phrase "urgency of prompt action." That phrase is used in section 40-8, subsection b, authorizing the District to "expend available funds to perform any cleanup, abatement, or remedial work required under the circumstances which, in the determination of the board of directors, is required by the magnitude of the endeavor or the urgency of prompt action

needed to prevent, abate, or contain any threatened or existing contamination of, or pollution to, the surface or groundwaters of the District."

Without question, neither immediacy nor urgency has been a factor in the NBGPP. No abatement or clean-up has yet begun, even though evidence established that the Regional Board and the District had concerns about VOC groundwater contamination in the North Basin in the previous century and this lawsuit was filed in 2004. (Ex. 10711-5; July 30, 2012 TT 5530:10-5531:26.) Nor was there any evidence in the phase one trial of any reasonable necessity for immediate action. The District staff who testified did not identify any urgency insofar as contamination is concerned. As discussed, Roy Herndon testified the District has not updated plume maps in the NBGPP area since 2008. (July 31, 2012 TT 5722:15-21.) There are no current "releases" of VOCs at the Defendants' sites. By the time of trial the District had not been decided whether it would proceed with the NBGPP. A vague or possible or potential threat of groundwater contamination in the future based on 20th century VOC releases onto the surface soil is too speculative to trigger the conditional clause in Water Code-Appendix § 40-8 for future remediation which may or may not occur.

Moreover, liability under the Orange County Water District Act only arises with respect to remedial costs. The Orange County Water District Act distinguishes between investigatory costs in section 8 (a) from remediation costs in section 8 (b). Pursuant to section 8 (c) of the Orange County Water District Act, only remedial expenses under section 8 (b) are recoverable – investigatory costs under section 8 (a) are not recoverable. (See also *In re: MTBE Liability Litigation* (S.D.N.Y. 2011) 824 F.Supp.2d 524, 535 ["the plain language of the Act clearly prohibits recovery for these costs."]; *In re: MTBE Liability Litigation*, 279 F.R.D. 131, 135.)

The District's investigatory costs are not recoverable under the Orange County Water District Act. The installation of extraction wells (which are not yet in operation) may qualify as remedial, but that would depend on their being used as part of a

remediation process, and the District has not made that decision yet.

III. TRIAL DEFENDANTS ARE NOT LIABLE FOR FUTURE REMEDIATION COSTS

Nor is the District entitled to a declaration that any Trial Defendant is liable, either jointly and severally or on a proportional basis, for future NBGPP costs. Since no final plan is in place and the District has not even decided that it will proceed with the NBGPP, one may question whether a justiciable controversy exists. Nonetheless, eight years after the lawsuit was filed, the parties insisted the issue was ripe for determination and the District spent months presenting its case in chief (the phase one trial spanned a period of seven months).

Conceptually, when a water agency is seeking to hold others responsible for remediation costs, it is fairly straightforward to determine that a water remediation project is necessary and its costs are reasonable once the project is in operation and producing results. It is more difficult perhaps when a project plan is not fully developed, the public agency has not committed to implementing it, and the costs are estimates with 30-year going-forward projections. The parties' approach here was to analyze what had and had not been done to date and to rely heavily on expert analysis and testimony.

A. Inadequate Investigation into the Need for the NBGPP

The District inadequately investigated the need for the NBGPP. The FFS prepared by GeoSystems in 2000 stated that the plume was then four miles long by one mile wide. (Ex. 11771-16.) At trial 12 years later, the District's retained hydrogeologist expert, Dr. Graham Fogg, testified the plume was still four miles long and one mile wide. (June 18, 2012 TT 3759:16-17.) In addition, the weight of the evidence established that VOC concentrations within the plume area are decreasing. For example, the area of the plume that is 10x MCL (over ten times above MCLs) is smaller in the 2008 plume map prepared by the project manager, Dave Mark (Ex. 695), particularly in the central part of the map, as compared to the 2005 plume map (Ex. 943). The court accepts this as proof of natural attenuation.

Roy Herndon, the District's chief hydrogeologist, acknowledged in 2011 that it would be "good time to consider updating the plume map." (July 31, 2012 TT 5722:18-25.) The District's failure to prepare a current plume map when it was within the District's power to do so, coupled with the decreasing trend of contamination between 2005 and 2008, leads the court to infer that a current plume map would not favor the District and that the District's proffered evidence as to the scope and concentration of VOC contamination in the NBGPP area is exaggerated. (Evidence Code § 412; CACI 203.)

A further factor undermining the credibility of the District's evidence was its failure to conduct any contaminant mass transport analysis before developing the NBGPP to determine whether or not VOCs will migrate from the shallow aquifer to the principal aquifer. Herndon admitted that mass transport modeling is a generally accepted tool employed by hydrogeologists and the District had employed consultants to prepare contaminant mass transport modeling for other projects. He also admitted Tim Sovich, a District employee, had formal training that would have allowed him to perform a contaminant mass transport analysis, and that such analysis would have been useful information to have before undertaking a VOC cleanup project. (July 31, 2012 TT 5715:4-5716:8.)

Indeed, both the District's former chief hydrologist, Mr. Goodrich, and the District's former general manager, Ms. Grebbien, both understood the need for a fate and transport model. Goodrich testified that "if it were my money, I would prefer having a fate and transport model." (Ex. 15979-5.) Grebbien mistakenly testified that such a model had been prepared, which implies some recognition on her part of the advisability of such modeling. (April 26, 2012 TT 1461:4-9; 1474:8-13.) However, as project manager Adam Hutchison testified, no such modeling was ever prepared for the NBGPP. (July 16, 2012 TT 4547:20-4548:8.) Dr. Fogg was not asked to perform a fate and transport analysis of contaminants in the event that no project was built, even though he had the ability to do so. (June 19, 2012 TT 3854:4-10.) This is another example of the District's having the

power to produce stronger and more satisfactory evidence, but failing to do so.

Nor did the District offer any evidence as to the duration of each extract-transport-treat-and-recharge cycle under the NBGPP. The current version of the NBGPP provides for the removal of shallow aquifer water from extraction wells, its transport back upgradient to the centralized treatment station, treatment, and then its recharge into the shallow aquifer (which the District contends is contaminated for reasons not entirely related to the conduct by any Trial Defendant) for continuous rounds of down-gradient flow, extraction, upgradient transport, treatment, and recharge. The District presented no evidence as to how long each cycle will take.

Similarly, the court infers from the District's failure to calculate natural attenuation rates that it is more likely than not that those calculations would fail to support the asserted need for the NBGPP. The court finds that the District inadequately considered natural attenuation as an alternative to the NBGPP. First, the District itself relies on monitored natural attenuation as a sufficient force to handle contamination in the plume that is below 5x MCL. (May 3, 2012 TT 2080:2-10.) In fact, the FFS noted that "decay appears to be an ongoing process in groundwater beneath the project area" (Ex. 11771-272) and that if implemented "in conjunction with source control measures, natural attenuation would ideally result in a gradual decrease in VOC concentrations." (Ex. 11771-273.) The District's own consultant, Phil Miller, testified "there appears to have been quite a lot of degradation." (July 23, 2012 TT 5087:19-21.) Nevertheless, Miller "had no idea" about the rate of natural attenuation because the District did not engage him to calculate attenuation rates. (*Id.*, p. 5086-23-5087:1.)

Second, instead of instructing its consultants to calculate natural attenuation rates, the District asked GeoSystems, which prepared the FFS, "to focus" on its already chosen method -- extraction. (July 16, 2012 TT 4521:20-23.) The FFS itself noted the range of treatment options being "evaluated is relatively narrow, based on the OCWD's presumptive remedy of groundwater extraction." (Ex. 11771-47.) Significantly, in

addition to its consultants, the District's own witnesses acknowledged that natural attenuation is taking place within the aquifer. Mark testified VOC concentrations have declined, that natural attenuation occurs, and that the plume will attenuate. (May 8, 2012 TT 2465:9-25.) Dr. Fogg agreed that natural attenuation is taking place in the aquifer. (June 19, 2012 TT 3828:24-3829:2.)

The court finds the District's failure to prepare and provide a current plume map, to conduct a fate and transport analysis, and to calculate natural attenuation rates not only weakens the District's evidence as to the need for the NBGPP, but also supports an inference that the District did not procure this information and data because it might refute the need for the NBGPP.

B. Inadequate Cost/Benefit Analysis

The court further finds the NBGPP is unreasonable because substantial evidence supports the conclusion that its high cost outweighs its potential benefits. As originally proposed in 2000, the NBGPP involved six extraction wells and a total net present value cost of $15,000,000. (Exs. 10870-9.) The cost estimate for the project in 2001 was $16,900,000 in today's dollars, which consisted of the original $15,000,000 estimate plus $1,900,000 for adding advanced oxidation treatment for 1,4-dioxane. (Ex. 10870-9; July 31, 2012 TT 5726:12-5727:4.) In 2005, after this lawsuit was filed, the cost had risen rather modestly to a net present value of $19,000,000. (Ex. 10870-8.) By the end of 2011, however, the NBGPP had a net present value cost of more than $200,000,000, with no corresponding cost/benefit analysis prepared to attempt to justify the tremendous increase in price. (July 31, 2012 TT 5731:1-22.)

Herndon sought to justify this expense at trial by testifying that "the value of the water itself" is "paramount" from a cost-benefit standpoint. (July 31, 2012 TT 5763:19-5764:6.) He testified the District would have to pay up to $800 an acre foot for water imported from the Colorado River. (*Id.*, p. 5762:11-23.) The District calculated the NBGPP could result in water being treated and returned to the shallow, non-drinking

water aquifer for $250 per acre foot. (Ex. 10870-8.) However, this calculation was based upon and assumed a $19,000,000 net present value for the NBGPP in 2005. Multiplied by the ten times growth in the NBGPP's 2011 net present value cost, the cost per acre foot would rise to an amount in excess of $2,500 per acre foot for water in the shallow, non-drinking aquifer, more than three times the cost of importing Colorado River water.

It must also be remembered that the present NBGPP does not involve any treatment of local drinking water supplies, i.e., water in the deep/principal aquifer. The estimated $200,000,000 cost is to serially extract, transport, treat, and recharge the shallow aquifer only. This money is being spent exclusively on water that is not yet and may not ever be in the North Basin's drinking water supply. Had the District updated the plume map, conducted a fate and transport analysis, and calculated natural attenuation rates, a cost/benefit analysis would have shown the proverbial "apples to apples" comparison. That was not done here, however.

The District's board adopted and implemented a Resolution regarding the construction of public projects which requires a cost/benefit analysis, and directs that project approval "shall be based primarily on the economic evaluation." (Ex. 821-2.) The District witnesses agreed the cost/benefit requirement applied to the NBGPP. (July 16, 2012 TT 4470:18-4472:3.) Yet, no separate cost/benefit analysis for the $200,000,000 system was presented to the District's Board, or to the court as evidence in trial. This is particularly troublesome as Dr. Fogg testified that even with an "optimistic" assumption that there would be no further migration of contaminants from the vadose zone (below the surface, but above the shallow aquifer) into the shallow, non-drinking aquifer, the NBGPP as currently proposed would remove only one-third of the current contaminants after 30 years of operation. (June 19, 2012 TT 3827:3-12.) Fogg performed no cost/benefit analysis regarding the NBGPP (*Id.*, TT 3827:13-17) and had no discussions with the District as to whether the NBGPP would justify its costs. (*Id.*, TT 3827:18-22.) No other witness for the District testified as to any such cost/benefit analysis.

The testimony from the District's own witnesses demonstrates the NBGPP's failure to meet the District's "Groundwater Quality Protection Policy," a duly adopted ordinance which require a rigorous "cost benefit" economic analysis prior to any project approval. (Ex. 821-2; June 19, 2012 TT 3827:13-22; May 8, 2012 TT 2441:2-2442:23.) Especially in light of the substantial increase in estimated cost of the NBGPP, the District's failure to perform a cost/benefit analysis given the estimated duration of the NBGPP of thirty years with significant operation and maintenance costs resulting in removal of only one-third of the contaminants from the (non-drinking water) shallow aquifer is another example of the District offering weaker and less satisfactory evidence when it was in the District's power to have produced stronger and more credible evidence.

The testimony also established that at least one extraction well (EW-4) is unnecessary since the wells closest to EW-4 with the highest VOC levels do not have a single contaminant greater than 5x MCL, and most of the wells in the area are either at or below MCLs. (July 27, 2012 TT 5341:11-5342:7.)

The court finds the District has not shown that the benefits of the NBGPP exceed its significantly increased anticipated costs. In the court's view, the NBGPP is not economically reasonable.

The District tried this phase of the litigation on the basis that the NBGPP was necessary to address VOC contamination allegedly caused by Defendants. The District further asserted that because the VOC contamination was being addressed, the District was required by law to address nitrate and perchlorate contamination as well. The District did not try this phase of the litigation on the basis that the NBGPP was necessary to remediate nitrate and perchlorate contamination; and, further, because that contamination was being addressed, the District would also remediate VOC contamination allegedly caused by Defendants. The distinction is critical.

A remediation project to address VOC contamination in the shallow aquifer could effectively involve extraction wells at various down-gradient locations with treatment at

the well locations. This less costly alternative was initially proposed, but then rejected by the District apparently because (1) in-place treatment would not resolve the nitrate and perchlorate contamination (which the undisputed evidence shows was not caused by any Trial Defendant); (2) the District preferred not to exercise its power of eminent domain to erect the modestly sized facilities needed at each extraction well; and (3) releasing the cleansed water upgradient of the contamination plume would likely speed dilution of soil and shallow aquifer contamination (but see the 30-year project estimate and only one-third clean-up goal). (July 16, 2012 TT 4560:23-4561:23; July 17, 2012 TT 4682:4-17.)

Trial evidence indisputably established perchlorate contamination in the shallow aquifer. (Ex. 955; June 4, 2012 TT 3523:15-18.) Perchlorate concentrations at many locations in the NBGPP area exceed the MCL. (Ex. 955; May 3, 2012 TT 2091:21-2092:15.) A reasonable inference and conclusion from this evidence is that the District selected the far more expensive centralized treatment project over the modular treatment project because of perchlorate contamination. (Ex. 11070-9; May 3, 2012 TT 2135:22-2136:5; 2146:16-2147:12; July 16, 2012 TT 4472:4-4474:4.) The court finds that none of the Trial Defendants released any perchlorate or was responsible for any perchlorate contamination. (July 16, 2012 TT 4559:20-4560:1.) The evidence established a major source of the perchlorate in the shallow aquifer is imported Colorado River water purchased by the District to recharge the aquifer. (Ex. 15859-2; July 16, 2012 TT 4493:21-4494:10; April 26, 2012 TT 1481:15-1482:12.) Colorado River water has been purchased by the District for decades in significant quantities. (*Id.*; Ex. 15859 and 11092; July 16, 2012 TT 4507:23-4508:1.)

Dr. Waddell, the District's retained causation expert, admitted the District's recharge activities caused contaminated groundwater, including groundwater contaminated with perchlorate, to move to areas that such water would not have traveled, but for the recharge. (May 10, 2012 TT 2758:12-20.)

The treatment of perchlorate is different from the treatment of VOCs and involves

a separate ion exchange treatment plan, which is expensive. (May 3, 2012 TT 2146:16-23.) Indeed, in 2003, Ms. Grebbien, then the District's general manager, informed the District's Board that treatment for perchlorate would more than double the overall NBGPP treatment costs. (April 26, 2012 TT 1510:26-1511:6.)

The court further finds that as between the District and the Trial Defendants, the District is also responsible for nitrate contamination. Recharge from the Santa Ana River has contributed nitrates to the North Basin aquifer. The District's own consultant, Avocet, has stated that nitrate is one of the principal contaminants to be remediated. (May 8, 2012 TT 2529:25-2530:7.)

Other sources of nitrate that contribute to concentrations of the groundwater flows include agricultural practices and human wastewater discharges. (April 26, 2012 TT 1514:19-1515:7; May 3, 2012 TT 2090:12-16.) The FFS prepared by GeoSystems in September 2000 notes that nitrate concentrations since the 1960's have shown an increasing trend that may be attributable to increased recharge of the Santa Ana River water and decreased recharge of Colorado River water. (July 23, 2012 TT 5126:8-15; Ex. 11771-41.)

A significant source of nitrate in the aquifer is the recharge of surface waters containing nitrate by the District through its artificial recharge system. (August 9, 2012 TT 6562:10-19.) There is no evidence that any Trial Defendant released nitrates or was responsible for any nitrate contamination.

According to the District, both nitrate and perchlorate need to be treated in order to meet state discharge standards to re-inject the water back into the ground. (June 21, 2012 TT 4118:1-5.) The removal process for nitrate is also ion exchange, but requires a different ion exchange treatment than is used for the treatment of perchlorate. (May 3, 2012 TT 2147:3-9.)

Because the District took the position that this was a VOC remediation project, it sought to hold the Trial Defendants liable, not only for the VOC remediation, but also for

the added costs to remediate the nitrate and perchlorate contamination they did not cause. The District concluded that in order to remediate nitrate and perchlorate contamination, a centralized treatment plan, though more expensive than a modular plan, was mandated. (Ex. 10870-3; July 31, 2012 TT 5701:10-13; 5703:1-15; July 16, 2012 TT 4501:17-4502:6; July 17, 2012 TT 4773:2-4774:1; August 9, 2012 TT 6546:13-6547:6.) The court finds no legal basis for the District's claim that the Trial Defendants are liable for the remediation of the nitrate and perchlorate contamination they did not cause. If this or any other project is required to remediate nitrate and perchlorate contamination, then as between the parties, the District has responsibility for all such remediation.

The court further finds, based upon the weight of the evidence, that the NBGPP is not necessary either to protect the principal aquifer – the drinking water aquifer – or to remediate VOC contamination in the shallow (non-drinking water) aquifer to a goal of 5-10 times the MCL for the various VOCs in order to provide future protection for the drinking water principal aquifer.

C. Inadequate Consideration of Source Removal and Natural Attenuation

Plaintiff's efforts to justify the NBGPP based on the need to protect the Fullerton and Anaheim Well Fields, which do pump drinking water from the deep aquifer, fell short. Trial evidence demonstrated that the general east-to-west flow of shallow aquifer groundwater in the NBGPP area was north of those drinking wells, which are impacted by a different contamination plume that is south of the 91 Freeway. (July 16, 2012 TT 4534:16-4535:3; August 9, 2012 TT 6462:9-6463:10.) The District has dealt with contamination in that plume by natural attenuation and did not show why or how the NBGPP should be treated differently. (July 16, 2012 TT 4531:16-4532:6; July 17, 2012 TT 4735:2-11; 4738:8-14; July 30, 2012 TT 5543:2-5544:17.)

Even Dr. Fogg agreed natural attenuation is taking place in the aquifer. (June 19, 2023 TT 3828:24-3829:2.) He made no effort, however, to calculate the rate of natural attenuation in the shallow aquifer, or to determine what rate would be necessary to

control the plumes. (June 19, 2012 TT 3829:15-3830:10.)

Moreover, the weight of the evidence demonstrates that the areas of higher concentrations of VOCs in the shallow aquifer have decreased, not increased, over the last twelve years, and that VOC concentrations are decreasing in the shallow aquifer. Significantly, even Project Manager David Mark acknowledged that VOC concentrations have declined, that natural attenuation occurs, and that, based upon his decades of experience as a hydrologist as well as the data, the plume in the North Basin will continue to naturally attenuate. (May 8, 2012 TT 2465:9-25.) Furthermore, although the District is aware of the source removal activities at various sites, the District performed no modeling studies to demonstrate the results of source removal as an alternative to groundwater, treatment. (*Id.*, p. 2466:5-8.)

There was substantial evidence that state and local government agencies other than the District have been, and are currently, involved in source remediation efforts at various sites within the NBGPP area. For example, soil remediation under supervision of the Regional Board and the Orange County Healthcare Agency ("OCHA") was successfully conducted at Northrop's EMD facility, resulting in a no further action letter from both the Regional Board and the OCHA in 1991. (May 10, 2012 TT 2720:23-26; Exs. 12613 and 15314.) Soil remediation under the supervision of either the Regional Board or the OCHA has also taken place at the AGFI site (Ex. 21486), the Arnold Engineering site (Ex. 554), the AC Products site (April 30, 2012 TT 1756:18-1757:17; July 26, 2012 TT 5151:18-22), and the Gulton site (Ex. 17147.) Significant soil remediation activities have also taken place at the Johnson Controls site, under the supervision of the Department of Toxic Substance Control. (May 10, 2012 TT 2725:19-22.) Source remediation activities are currently being conducted at other sites under the supervision of the Regional Board, including Northrop's Kester site and Y-12 site. (July 26, 2012 TT 5202:25-5204:11; 5243:9-5244:19.) The District inadequately considered the effect of source removal on contamination mass transfer and inadequately

considered source removal combined with natural attenuation as an alternative to the NBGPP.

Although the preponderance of the credible evidence established this conclusion even without relying on Dr. Waddell's opinion, the court notes Dr. Waddell admitted that removal of the source contamination is an effective remediation strategy. (April 9, 2012 TT 606:21-608:4.) Northrop's expert, Glenn Tofani, explained the substantial drop in contamination levels at Kester was the result of "removing the source of Kester." (July 26, 2012 TT 5216:19-5217:4.)

Defense expert Steve Larson testified the District's proposed NBGPP would have no material effect on groundwater quality using the District's own standard of performance because of the location of the extraction wells in the shallow aquifer. Larson evaluated the extraction well locations of the proposed system, the directions of groundwater flow, and the pattern of VOC migration and determined, using actual site data. His opinion that groundwater in the NBGPP area and the VOCs in that groundwater moved primarily and predominantly from east to west in the shallow aquifer zone and to the southwest in the deeper aquifer zone was credible and in line with the testimony of other experts, including Plaintiff's. (August 23, 2012 TT 7086:19-24; 7087:6-13; Ex. 12725.)

Larson noted the extraction wells installed by the District are located in the shallow aquifer a substantial distance to the north of the public supply wells that are in the deep aquifer, a separate aquifer separated from the shallow aquifer by an "intervening low-permeability layer." (August 23, 2012 TT 7104:14-17.) His testimony that "overall there's been a long-term decline over an extended period of time" in concentrations of VOCs without the proposed treatment system operating also was not disputed. (August 23, 2012 TT 7090:25-26.) He added, "you will basically see these same kinds of trends continuing into the future, whether the extraction system is constructed and operated or whether it's not." (August 23, 2012 TT 7096:14-17; Ex. 12727-1, 2.)

Further, based upon the data and known geology and flow patterns, Larson determined that impacts in the deep aquifer are "not going to be materially affected by the pumping from the shallow [aquifer] that's part of the [proposed system]" and that as a consequence, "we're going to see the same kinds of trends and patterns in these areas, whether the system is operated or not operated." (August 23, 2012 TT 7098:1-7.)

As a separate and independent basis for his opinion, Larson evaluated and analyzed modeling conducted by both the District's expert, Fogg and Northrop's expert, Lambie, to determine if projected future conditions both in terms of chemical concentrations and mass of chemical present in the relevant locations, i.e., water wells in the deep aquifer, would be materially different if the proposed system was built and operated in the future. He determined that those conditions would not be altered in any meaningful way by the NBGPP. (August 23, 2012 TT 7123:21-7124:4; Ex. 12722 8-10; Ex. 12726, pp. 23 and 28.)

Lambie analyzed VOC data from hundreds of monitoring wells in the North Basin and found that more wells were trending downward than upward in VOC concentrations and the plume was stable. (Ex. 15921; August 9, 2012 TT 6471:7-17; 6472:26-6473:16.) The stability of the plume over time lends itself to the natural attenuation rate analysis prescribed in the scientific literature and EPA Guidance. (August 9, 2012 TT 6477:7-26.) No witness, including Fogg, attempted to refute Lambie's calculations. (August 27, 2012 TT 7438:21-7439:4.) Lambie's testimony demonstrated that the downgradient wells sampled consistently showed decreasing concentrations of PCE, TCE, 1, 1 DCE, and 1, 4-dioxane.

Defense expert Lambie performed a modeling scenario that Plaintiff expert Fogg did not: the no-pumping alternative scenario. (August 23, 2012 TT 7105:1-5.) Lambie's no-pumping model confirmed Larson's opinion about groundwater conditions in the deep or principal aquifer (where drinking water is extracted) that Larson had reached on the basis of the historical data, namely, that there were no significant differences in the

distribution and concentration of VOCs in the deep aquifer zone whether the proposed system was operated or not. (August 23, 2012 TT 7113:16-17, Ex. 12722 8-10.) The court finds the defense expert evidence on this issue to be thorough, credible and persuasive. (August 23, 2012 TT 7090:25-26; Exs. 12722 and 12727.)

Similarly, Lambie's conclusions that the extraction well system will have :little or no net benefit the [deep] aquifer" (August 9, 2012 TT 6462:9-19) and will not be so effective as natural attenuation "because the extraction system can only address small portions of the aquifer, whereas degradation of the material is happening ubiquitously throughout the system" (August 9, 2012 TT 6518:8-15) are supported by the data and persuasive.

The groundwater in the NBGPP area is north of the Fullerton and Anaheim well fields which pump drinking water from the deep aquifer. Those water wells are impacted by a contamination plume originating from sources located south of the 91 Freeway. The District has dealt with contamination in that plume by natural attenuation. (July 16, 2012 TT 4531:16-4532:6; 4735:2-11; 4738:8-14; July 30, 2012 TT 5543:2-5544:17.)

The evidence supports, and the Court accepts, the conclusion reached by both Lambie and Larson that the NBGPP is not necessary because it does offer a meaningful benefit over the current situation, which is to rely on natural attenuation to lessen the level contamination in the shallow aquifer and for that reason does not offer much potential to improve the drinking water supply in the deep aquifer.

Fogg's criticism of Larson's testimony was not convincing. The regional versus local model testimony was not persuasive to the trier of fact, particularly where Fogg acknowledged that he had not run the "no system" modeling scenario and, consequently, was unable to determine if there were any significant differences between his suggested approach and Lambie's approach. (August 27, 2012 TT 7408:16-17; 7409:20-25; August 27, 2012 TT 7410:18-7411:6.)

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IV. THE DISTRICT DID NOT SUBSTANTIALLY COMPLY WITH THE NATIONAL CONTINGENCY PLAN

The District failed to establish it is entitled to contribution or indemnity from Defendants under California's Carpenter-Presley-Tanner Hazardous Substance Account Act ("HSAA"); Health & Safety Code § 25300 *et seq.*) as the preponderance of the evidence establishes the District failed to substantially comply with the NCP.

Plaintiff and Trial Defendants agree the HSAA "adopts the scope of liability of" the United States' Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"); 42 U.S.C. § 9601 *et seq.*) The elements of a cost recovery action under the HSAA are the same as those under CERCLA. "To establish liability under CERCLA § 107 (a), a plaintiff must establish: 1) the chemicals at issue are hazardous substances; 2) there has been a release of the chemicals at defendants' facilities; 3) the release or threatened release caused the plaintiff to incur necessary response costs consistent with the National Contingency Plan ("NCP"); and 4) defendants are within one of the four classes of persons subject to CERCLA's liability provisions. (*Castaic Lake Water Agency v. Whittaker* (2003) 272 F.Supp.2d 1053, 1059.)

The first two elements were established in the phase one court trial. The chemicals at issue in this litigation are hazardous substances and there were releases of VOCs into the soil at Defendants' various facilities,[1] although not always by whom or when.

While the District acknowledges it has the burden to prove the VOC releases caused it to incur response costs, per the third element, it disputes the need to comply with the NCP. The District first contends the NCP provides only procedural requirements that are not an element of a cause of action for recovery of costs under the HSAA.

[1] This is not to say the evidence established that each Trial Defendant *caused* the release of VOCs at its facility. In some cases, the evidence showed that such releases pre-dated or post-dated the ownership or operations of the specific Trial Defendant.

Alternatively, should the court determine compliance with the NCP is required, the District argues the evidence demonstrates it substantially complied. Trial Defendants disagree and assert Plaintiff may recover only those costs incurred for necessary remedial costs that are consistent with the NCP.

The Court finds that consistency with the NCP is a prerequisite to the District's cost recovery. The District's reliance on *Redevelopment Agency of San Diego v. Salvation Army* (2002) 103 Cal.App.4th 755 to argue the NCP is not an element of cost recovery under the Polanco Act (Health & Saf. Code, § 33459 *et seq.*) is misplaced. The elements of a Polanco Act cost recovery action are different from those for a cost recovery action under CERCLA. (*Redevelopment Agency of San Diego v. Salvation Army, supra*, 103 Cal.App.4th at p. 764.)

And the parties in this action agree the cost recovery elements under HSAA are the same as those under CERCLA. An HSAA plaintiff "who has incurred removal or remedial action costs in accordance with this chapter or the federal act may seek contribution or indemnity . . . ." (Health & Saf. Code, § 25363, subd. (e).) "This chapter" is the HSAA (Health & Safety Code § 25300 *et seq.*) and "the federal act" is CERCLA. (See § 25315 ["'Federal act' means [CERCLA]"; see also § 25310, which provides that "[u]nless the context requires otherwise and except as provided in this article, the definitions contained in Section 101 of the federal act (42 U.S.C. Sec. 9601) shall apply to the terms used in this chapter." Moreover, the Ninth Circuit Court of Appeals has recognized that "HSAA incorporates the NCP standard by reference. Under HSAA, '[a]ny response action taken or approved pursuant to this chapter shall be based upon, and be no less stringent than...[t]he requirements established under federal regulation pursuant to [the NCP].' Cal. H & S Code § 25356.1.5 (a) (1)." (*Fireman's Fund Insurance Company v. City of Lodi California* (9th Cir. 2002) 302 F.3d 928, 949.)

HSAA's statutory language specifically refers to the chapter in the Health & Safety Code that references CERCLA and to CERCLA itself. It differs markedly from the

Polanco Act, which employs the non-specific reference, "consistent with other state and federal laws." The significant differences in the statutory language and the elements of a recovery action between the Polanco Act and the HSAA lead the Court to conclude that the *Redevelopment Agency of San Diego* decision is distinguishable and not authority in this litigation.

As compliance with the NCP is a prerequisite to Plaintiff's recovery of necessarily incurred costs caused by Defendants' actions, who has the burden to prove substantial compliance? The court finds the burden rests with the District.

Pursuant to 42 U.S.C. section 9607 (a) (4) (B), a defendant is liable to any person incurring "necessary costs of response...consistent with the national contingency plan." This language is subtly more restrictive than that found in 42 U.S.C. section 9607 (a) (4) (A), which entitles "the United States Government or a State or an Indian tribe" to recover "all costs of removal or remedial action...not inconsistent with the national contingency plan." And, per the Ninth Circuit in *Washington State Department of Transp. v. Washington Natural Gas Co., Pacific Corp.* (9th Cir. 1995) 59 F.3d. 793, 799-800, "Section 9607 (a) 'functions to distinguish between government response costs in subsection (A) and private response costs in subsection (B).' [Citation.] While the United States government, or a state, or an Indian tribe, cannot claim 'all costs of removal or remedial action . . . not inconsistent with the [NCP],' any other person can obtain 'other necessary costs of response . . . consistent with the [NCP].' The language difference indicates that, when the United States government, a state, or an Indian tribe is seeking recovery of response costs, consistency with the NCP is presumed. [Citation.] Therefore, under these circumstances the potentially responsible party has the burden of proving inconsistency with the NCP. [Citations.] In contrast, any 'other person' seeking response costs under § 9607 (a) (4) (B) must prove that its actions are consistent with the NCP." Here, the District is not a "state" as that term is used in CERCLA, as the District is not a state-wide agency, but rather a local political entity that falls outside the definition of

"state" in CERCLA. (*Santa Clara Valley Water District v. Olin Corporation* (N.D. Cal. Sept. 28, 2007, C07-03756 RMW) 2007 WL 2890390; *Washington State Dept. of Transp., supra,* 59 F.3d. 793, 800 fn. 5.)

Thus, the District has the burden of proof, under 42 U.S.C. section 9607 (a) (4) (B), to prove substantial compliance with the NCP. However, the burden of proof issue is more academic than practical in this case. While the District failed to prove it substantially complied with the NCP, the Trial Defendants proved non-compliance with the NCP.

Specifically, the Court finds the District failed to involve the public in generating its proposal as required by Code of Federal Register § 300.700 (c) (6). The District likewise failed to conduct a remedial investigation ("RI") study as required by the Code of Federal Register § 300.430 (d) (2). "The purpose of RI is to collect data necessary to adequately characterize the site for the purposes of developing and evaluating effective remedial alternatives." (400 CFR § 300.430 (d) (1).) Without a proper RI, no baseline risk assessment to human health or the environment was done as required under Code of Federal Register § 300.430 (d) (1).) Moreover the District also failed to conduct a proper feasibility study ("FS") as required by Code of Federal Register § 300.430 (e).) "The primary objective of the FS is to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected." (40 CFR § 300.430(e) (1).) Other examples of the District's failure to substantially comply with the NCP include the District's failure to create a proper conceptual site model as required by Code of Federal Register section 300.430 (b) (2) and the District's failure to obtain documentation from the lead agency documenting the basis for selecting its proposed steps of the public input as required by Code of Federal Register section 300.430 (f) (5).)

Furthermore, the District failed to establish that the NBGPP is cost-effective as

required under the NCP (rather, Trial Defendants established the NBGPP is not cost-effective). Whether an expenditure or step is "cost-effective is determined by comparing effectiveness to cost by evaluating: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility, or volume through treatment; 3) short-term effectiveness." (*Franklin County Convention Facilities Authority v. American Premier Underwriters* (6th Cir. 2001) 240 F.3d 534, 546 (citing 40 CFR § 300.430 (f) (1) (II) (D).)

Defense expert Steve Larson credibly testified the District did not follow the systematic, procedural, and clearly defined steps under the NCP for evaluating the potential impacts of the proposed system and of evaluating and contrasting alternative remedy approaches to determine, among other considerations, whether the proposed system's location, design, and planned operation meet the intended objectives. (August 23, 2012 TT 7124:18-26.) Larson considered whether the 2000 FFS sufficiently complied with the NCP and opined it did not. (August 23, 2012 TT 7128:2-5; 7128:21-7129:8; Ex. 11771.) Neither the District nor its consultants ever completed a meaningful analysis of other approaches as compared to the proposed project. For example, a "monitored natural attenuation" and source control/source removal approach, which is standard practice under the NCP, was not properly and meaningfully analyzed. (August 23, 2012 TT 7130:6-17; 7131:7-22.) Though the FFS contains a brief statement regarding alternatives to active treatment, including "no action" and monitored natural attenuation, the Supplemental Focused Feasibility Study ("SFFS") prepared by the District's consultants (Ex. 11063) acknowledges that the 2000 draft FFS was based on a "presumptive remedy" of treatment, rather than a full analysis of all options. (Ex. 11063-12-13.) Basing a feasibility study on a "presumptive remedy" is not consistent with the NCP process.

Furthermore, the FFS was focused on VOC contamination and remediation, not nitrate or perchlorate abatement. There is also no evidence the FFS was circulated for public comment, although the District did discuss the options with representatives from

Fullerton and Anaheim. (Ex. 15855.) However, the FFS bears no resemblance to the NBGPP since it does not address or include a remedial investigation or feasibility study of 1-4 dioxane, nitrate or perchlorate contamination or the need to treat those chemicals. Furthermore, the FFS is identified only as a "draft."

Exhibit 11063, the SFFS, was prepared by a different consultant for the District and Plaintiff's trial counsel after this lawsuit was filed. The SFFS notes several developments since the initial draft FFS report: 1) 1,4-dioxane had been detected in the area and it is not amenable to the liquid-phase granulated active carbon treatment as the previously discussed VOCs (Ex. 11063-13); 2) the District was not satisfied with the preliminary efforts to obtain small parcels of property for the modular treatment facilities at the extraction well sites (Ex. 11063-13); and 3) there was now a "presumptive hydraulic control remedy" that focused "on the relative advantages of centralizing the treatment system at a single location." (Ex. 11063-9). The SFFS noted that the 2000 draft FFS was based on a "presumptive remedy" of treatment (albeit at the extraction well sites) rather than a full analysis of all options. (Ex. 11063-12-13.) Even so, the 2005 SFFS characterized the 2000 draft FFS as a "feasibility study following the framework of the...(NCP)." (Ex. 11063-11.) The SFFS did not analyze why some alternatives had been abandoned nor did it fully explain the impact of the more recent data and information on the NBGPP. It did not explain the costs or benefits of the presumptive alternative or the environmental benefits in terms of impacts on the area's drinking water which comes from the deep and not the shallow aquifer. It became apparent through trial testimony, however, that the presence of nitrates, perchlorate, and other contaminants, meant that the original proposal to treat VOCs at extraction well sites in the shallow aquifer and then inject treated water into the deep aquifer was no longer viable. However, this trial testimony is not a substitute for substantial compliance with the NCP, and does not prove substantial compliance with the NCP.

Exhibit 708 is the 53-page October 2005 report prepared by Mark and several

other District employees concerning the "[then] current project conceptual design." (Ex. 708-7.) The report states it is intended to be "consistent with the requirements of the . . . (NCP) . . . . In addition to providing useful guidance and an overall structure for the draft Focused Feasibility Study and Supplemental Focused Feasibility Study, consistency with the NCP may be advantageous in cost recovery actions against the identified potentially responsible parties." (Ex. 708-15-16.) The Court finds that Exhibit 708 was merely an explanation of the already planned project, not a feasibility study or a cost-effectiveness or treatment-effectiveness analysis as required by the NCP.

The "distributed" or "modular" (decentralized) treatment with injection into the deep aquifer was originally considered by the District as the best treatment alternative, but was later discarded by the District without any technical evaluation of effectiveness versus the selected centralized treatment alternative. Further, the potential negative effects of shallow injection were not adequately considered. (August 23, 2012 TT 7133:6-17.) Indeed, Larson testified that the construction of the NBGPP's extraction wells "have created a situation where there is cross-contamination going from the shallow aquifer into the deeper zones." (August 23, 2012 TT 7137:20-25.)

Accordingly, the Court finds by a preponderance of the evidence that the District failed to substantially comply with the NCP. This failure precludes recovery under HSAA, irrespective of how the Districts' costs are categorized. (*Gregory Village Partners, L.P. v. Chevron U.S.A., Inc.* (N.D. Cal. 2011) 805 F.Supp.2d 888,897 ["A claim under HSAA has the same elements as a claim under CERCLA" one of which is plaintiff incurs response costs "consistent with the national contingency plan"]; 42 U.S.C. § 9607(a)(4)(B); *Carson Harbor Village Ltd.* (9th Cir. 2006) 433 F.3d 1260, 1265-1269.)

V. CAUSATION

A. Weaker Evidence and Witness Credibility

The testimony in the phase one court trial was, of necessity, expert heavy. All the experts were hampered to some degree because so many years that had elapsed since

the Trial Defendants and entities unrelated to them operated in the NBGPP area. Although Plaintiff's primary causation expert, Dr. Richard Waddell, testified that while there were several hundred commercial industrial sites within the NBGPP area, many of which used chemicals of concern, he reviewed information for only 103 of those sites. (May 15, 2012 TT 2880:17-2881:4.) Many expert opinions were based on old data, limited data, data extrapolation and data projection.

The District had the burden to prove causation as to each Trial Defendant, i.e., a causal connection between each Trial Defendant's conduct and the District's response costs. Much of the District's causation evidence is properly viewed with distrust by the trier of fact (Evid. Code, § 412; see also CACI 203):

1. As previously discussed, the District did not conduct a contaminant mass transport/fate and transport analysis before developing the NBGPP to determine whether it is more likely than not that VOCs will migrate from the shallow aquifer to the principal/deep aquifer. (July 16, 2012 TT 4547:20-4548:8.)

2. District staff testified that Plaintiff had the ability to prepare a current contaminant plume map for use at trial. Instead, the District relied on 2005 and 2008 plume maps. (July 31, 2012 TT 5721:24-5722:21.) The 2008 plume map showed that in the intervening three years since production of the 2005 map, VOCs of 10 times the legal maximum contaminant level ("MCL") in the NBGPP area had decreased, proof of natural attenuation. (Exs. 695 & 943, May 8, 2012 TT 2459:23-2460:15, 2464:14-2465:25; August 9, 2012 TT 6503:2-6505:3.) The finder of fact draws a negative inference against Plaintiff for its failure to produce a current plume map, despite its contemplation of doing so and acknowledged ability to do so.

3. Even though District witnesses (in line with the testimony of defense witnesses as well) testified that natural attenuation would continue, the District did not calculate natural attenuation rates. (July 16, 2012 TT 4543:22-4544:1; July 23, 2012 TT 5075:25-5076:6; July 31, 2012 TT 5718:19-26.)

4. The District did not conduct an adequate cost/benefit analysis for the NBGPP, even though:

a. Substantial evidence supported a finding that the anticipated cost of the NBGPP (in excess of $200,000,000) far outweighed benefits, particularly when gauged against what the District now pays for potable water (July 31, 2012 TT 5731:19-22; 5763:19-5764:6; 5762:11-23; Ex. 10870-8);

b. The estimated duration of the NBGPP is thirty years with significant annual O & M (operations and maintenance) costs, while the NBGPP contemplates removing only one-third of the contaminants, i.e. VOCs plus nitrate and perchlorate, in the shallow aquifer, without any re-injection into the principal aquifer (June 19, 2012 TT 3827:3-12; 3827:13-17);

c. There was no estimate for the duration of an extraction-transport-treat-and recharge cycle under the NBGPP (i.e. the NBGPP provides for the removal of shallow aquifer water from extraction wells, its transport back upgradient to the centralized treatment station, treatment, and then recharge back into the shallow aquifer (July 17, 2012 TT 4692:5-4692:21) [which the District contends is contaminated for reasons not entirely related to the conduct by any Trial Defendant (July 16, 2012 TT 4559:20-4560:1)] for endless rounds of down-gradient flow, extraction, upgradient transport, treatment, and recharge);

d. At least one extraction well (EW-4) will attract only water that is already below 5x the MCL treatment for the VOCs of concern in this action and below the treatment goals of the NBGPP (July 27, 2012 TT 5341:11-5342:7).

e. The Regional Board has primary jurisdiction over soil clean-up. In the past, and even currently the Regional Board was overseeing clean-up efforts

at some of the Trial Defendants' sites. But there was no evidence the District attempted to cooperate or work with the Regional Board (as the Orange County Water Act authorizes) to obtain more current information concerning soil contamination and the threat, if any, to groundwater or to coordinate remediation and abatement efforts.

Moreover, the District's pre-litigation conduct made it more difficult to determine which entities, including non-parties, contributed to groundwater contamination or the threat of groundwater contamination. For years, the District engaged in recharge activities, i.e. it added water directly into the shallow aquifer from the north and east ends of the NBGPP area. The shallow aquifer flows generally in a west/southwest direction throughout the NBGPP area. (June 4, 2012 TT 3460:10-3461:6) The water that was "recharged" into the NBGPP area was contaminated with nitrates and perchlorate and also caused VOCs to spread from numerous points of origin. This conduct by the District made it more difficult to determine which entities other than Trial Defendants could or were likely to have contributed to groundwater contamination. (May 10, 2012 TT 2758:12-20; July 30, 2012 TT 5535:13-5536:4.)

Over the years, the District conducted one-time groundwater grab samples and used these results in its case-in-chief to establish that one or more of the Trial Defendants either contaminated the shallow aquifer or threatened contamination. The court agrees with the experts who opined that one-time grab samples may be useful for screening purposes (July 27, 2012 TT 5362:3-7), but, as opposed to the use of monitoring wells, they are unreliable to determine whether a site has contaminated or threatens to contaminate the shallow aquifer (August 13, 2012 TT 6756:11-14):

- They are only a snapshot in time of groundwater conditions at a site (April 9, 2102 TT 656:6-656:8; April 12, 2102 TT 815:22-816:6);
- They are not reproducible (August 13, 2012 TT 6771:12-19);
- They are not indicative of past groundwater conditions or trends (August 13,

2012 TT 6772:17-22);

- They do not measure groundwater levels and flow at a site over time (May 17, 2012 TT 3016:18-21; July 27, 2012 TT 5361:21-24);
- They do not measure horizontal and vertical conditions at a site (May 17, 2012 TT 3016:22-26; July 27, 2012 5361:25-5362:2);
- They are not accepted by California regulatory agencies as the sole method for determining whether a site has in fact impacted groundwater (August 13, 2012 TT 6772:10-16; July 27, 2012 5362:8-13).

It became apparent on cross-examination that Plaintiff's retained experts, Dr. Waddell and Dr. Fogg, were not given some important information and were not asked to engage in certain testing and analyses that would have been valuable in forming their opinions. These factual and analytical gaps adversely affected their credibility and the value to the trier of fact of their testimony.

Dr. Waddell's testimony focused on whether each Defendant at each site caused or threatened to cause groundwater contamination. This testimony was critical to Plaintiff's success on the three causes of action tried in the phase one trial. The Trial Defendants were literally a handful of a much greater number of entities that used VOCs in the NBGPP area (May 15, 2012 TT 2880:17-2881:4) and they were fewer than half the defendants originally sued in this action.

In addition to the many manufacturing companies that operated in this area, Dr. Waddell testified that drycleaners and gas stations, both known to have the potential to release VOCs into the environment, conducted operations in the NBGPP areas as well. (May 15, 2012 TT 2854:8-24; 2860:15-22; see also *In re: MTBE Products Liability Litigation* (2011) 82 F.Supp.2d 524).) In addition to VOC contamination, the evidence also amply established the presence of nitrate and perchlorate contamination in the shallow aquifer of the NBGPP area. (March 27, 2012 TT 401:8-402:25, 405:10-406:14; April 26, 2012 TT 1481:15-1482:26; 1483:25-1484:4; 1514:19-1515:5; May 3, 2012 TT

2087:19-2088:2.)

Although Dr. Waddell gave credible testimony (for example, with respect to some subsurface hydrogeologic characteristics in the NBGPP area, the identities of operators in the NBGPP area, the characteristics of the various VOCs, as well as nitrate and perchlorate), the court does not find Dr. Waddell to be credible insofar as causation is concerned, as discussed more fully below.

Over defense objection, Dr. Waddell was permitted to testify concerning his personal classification system to determine causation. (April 30, 2012 TT 1726:4-6 ["I developed a classification system that reflected the impact to groundwater. And there were five different categories in that."].) Per Dr. Waddell's personal system, if there was no indication that solvents had ever been used on a site, that site was classified as "unlikely" to have impacted groundwater. (*Id.* at 1729.) If the operator of a site actually reported a release of VOCs or solvents into the soil or groundwater, that site would be (somewhat surprisingly, in this court's view) categorized as an "unknown" contributor to groundwater. (*Ibid.*)

Dr. Waddell labeled 20 sites as "definite" or "major" contributors to groundwater contamination. (April 30, 2012 TT 1730:17-1731:9; Ex. 10146, pp. 18-20.) Although Dr. Waddell suggested that his counsel ask him for "the criterion that I used for grouping a site as "definite" (April 30, 2012 TT 1731:21-22), that question was never asked. Therefore, there is no evidence in the record as to which sites in the NBGPP area were classified as "definite." One fairly concludes, accordingly, that none of defendants' sites fell into that category. (Evid. Code, § 402.)

Dr. Waddell classified a "major" contributor as one "in which one or more of the compounds were present in groundwater at a concentration greater than 20 times the MCL or the notification limit for that compound." (April 30, 2012 TT 1732:4-7.) Among the nine sites in Dr. Waddell's "major" category were Alcoa Plant 1, Arnold, and three Northrop sites (Kester Solder, EMD, Y-12.) On cross-examination, Arnold established

that its place on the witness' "major" list was due to detections of TCE at a monitoring well located on the neighboring Johnson Controls' site. (May 1, 2012 TT 1975:21-1976:1.) However, the trial testimony Plaintiff presented by former Arnold employee Dan Hopen did not demonstrate that Arnold ever used TCE in its operations. And Arnold's defense evidence established by a preponderance of the evidence that it did not use TCE in its operations.

Dr. Waddell classified another nine sites as "likely" contributors to groundwater contamination, even though his criterion for the "likely" classification was that "there was no information with respect to the groundwater." (*Id.* at 1731.) The CBS site was identified in the "likely" category. Dr. Waddell included CBS in the "likely" category even though by his own testimony that meant he had found no groundwater contamination attributable to CBS.

The Crucible and Mag sites were never identified in the record as belonging to *any* category.

Despite admonitions from the court that the continued leading questions on direct examination would affect Dr. Waddell's credibility, counsel persisted in asking leading questions and this court concludes that strategy did adversely affect Dr. Waddell's credibility. In some instances, Dr. Waddell admitted on cross-examination that his testimony on direct was simply wrong. This can be traced, in part, to the fact that some of his testimony on direct examination really came from counsel rather than the witness' own words.

This court expects that retained experts who testify at trial will demonstrate a certain amount of bias in favor of the positions they espouse. That is why they are trial witnesses. At times during this trial, however, Dr. Waddell appeared to the court to take professional bias in favor of his work product far enough that it adversely affected their credibility. (CACI 207.)

Dr. Waddell, in particular, assumed an advocate's demeanor on occasion by

appearing to exaggerate conduct by Trial Defendants and unreasonably downplaying the involvement of entities other than the Trial Defendants. In his testimony concerning AGFI and Arnold, for example, Dr. Waddell opined both these Trial Defendants were responsible for groundwater contamination at adjacent upgradient properties. True, there were some locations in the NBGPP area where the shallow aquifer flow was in a north-to-northeast direction. (See *infra.*) But there was no credible evidence of that in these locations.

Dr. Waddell only reluctantly acknowledged the migration pathway moving directly from the former Chicago Musical site, just north of CBS' former facility at 500 S. Raymond. (RT 05/17/12 at 2962:6 – 2962:10). More than 20,000 tons of VOCS have been removed from the soil underneath the Chicago Musical site (see infra). It has been a major cleanup site under the auspices of the Department of Toxic Substances Control.

Dr. Waddell's exhibits regarding the PCE and other VOCs found at the Chicago Musical site contained inaccurate data that minimized the impact of the contamination there. Exhibits 531-66 and 531-67 underreported the level of PCE in soil and mischaracterized chemical signatures at Chicago Musical. This resulted in the creation of amended exhibits 531-66A and 531-67A for use in Dr. Waddell's cross-examination to properly demonstrate the soil-gas data. (RT 05/17/12 at 2947:24 - 2949:20; RT 05/17/12 at 2950:26 - 2953:2; RT 05/17/12 at 2955:26 - 2958:13; Ex. 531-66; Ex. 531-66A; Ex. 531-67; Ex. 531-67A).

Dr. Waddell also failed to show the high PCE soil gas reading of 79,000 ppb at Chicago Musical in his Exhibit 531-66. Instead, he showed 54,000 ppb as the maximum. (RT 05/17/12 at 2947:24 - 2949:20; 2950:26 - 2953:2; 2955:26 -2958:13) Furthermore, he omitted the chemical signature of soil gas readings at Chicago Musical of up to 93% PCE from this same exhibit. (RT 05/17/12 at 2947:24 - 2949:20; 2950:26 - 2953:2; 2955:26 - 2958:13; Ex. 531-66). Dr. Waddell conceded a trier of fact might be misled by his Exhibit 531-66 as to the amount of PCE found at Chicago Musical when compared to

the smaller soil samplings at CBS. (RT 05/17/12 at 2943:13 – 2943:26)

Such determination by an expert to make sure his opinions bolster plaintiff's liability theories serves only to undermine his overall credibility. Conversely, Dr. Waddell did appear more credible on those occasions when he testified that in his opinion contamination was caused by the conduct of entities other than the Trial Defendants.

VI. NO TRIAL DEFENDANT CAUSED THE NBGPP

A. No Conduct By Any Trial Defendant Was a But for or Substantial Factor in The District's Decision to Proceed With The NBGPP and Its Plan for Centralized Water Treatment

Based on the evidence presented, the Court finds that no Trial Defendant's conduct was a "but for" cause of, or a "substantial factor" in, the District's decision to approve the NBGPP. In *Viner v. Sweet* (2003) 30 Cal.4th 1232, 1240, the Supreme Court wrote:

> "The text of Restatement section 432 demonstrates how the 'substantial factor' test subsumes the traditional 'but for' test of causation. Subsection (1) of section 432 provides: "Except as stated in Subsection (2), the actor's negligent conduct is *not a substantial factor* in bringing about harm to another *if the harm would have been sustained even if the actor had not been negligent.*' (Italics added.) Subsection (2) states that if "two forces are actively operating ... and each of itself is sufficient to bring about harm to another, the actor's negligence may be found to be a substantial factor in bringing it about.'
>
> 'Thus, in Restatement section 432, subsection (1) adopts the 'but for' test of causation, while subsection (2) provides for an exception to that test. The situation that the exception addresses has long been recognized, but it has been given various labels, including 'concurrent independent causes' (*Mitchell v. Gonzales*, supra, 54 Cal.3d at pp. 1049, 1052), 'combined force criteria' (Robertson, The Common Sense of Cause in Fact (1997) 75 Tex. L.Rev. 1765, 1778), and 'multiple sufficient causes' (Rest.3d Torts, Liability for Physical Harm (Basic Principles) (Tent. Draft No. 2, Mar. 25, 2002) § 27, com. b, p. 70).
>
> 'This case does not involve concurrent independent causes, which are multiple forces operating at the same time and independently, each of which would have been sufficient by itself to bring about the harm. Here, the Viners argued that their losses were caused by defendants' negligence, the actions of MEI exploiting that negligence, the underlying

> economic situation, and 'other factors.' Because these forces operated in combination, with none being sufficient in the absence of the others to bring about the harm, they are not concurrent *independent* causes. Accordingly, the exception stated in subsection (2) of Restatement section 432 does not apply, and this case is governed by the 'but for' test stated in subsection (1) of Restatement section 432."

The "but for" causation test applies unless there are "multiple forces operating at the same time and independently, each of which would have been sufficient by itself to bring about the harm." Here, multiple forces, i.e., operations in the NBGPP area by scores or even hundreds of businesses over the span of several decades, were operating independently of each other. But there was no evidence that the conduct of any one Trial Defendant, or even the conduct of the Trial Defendants considered together, was sufficient to necessitate the NBGPP. No District witness testified that the conduct of any or all the Trial Defendants caused the District to incur any response costs. The NBGPP certainly would be a response cost. There were no concurrent independent causes, as the Supreme Court has used that phrase, and the "but for" test applies.

Applying the "but for" test, the Court considers each Trial Defendant's conduct. Proving that each Trial Defendant used VOCs in their operations or that a Trial Defendant owned property where VOCs were released by previous owners or tenants is not sufficient. The District also must prove that those releases caused it to incur response costs. Substantial trial evidence demonstrated that the District would have approved the NBGPP even if any one of the Trial Defendants or even if all Trial Defendants had not been operating in the NBGPP area.

It must be remembered that the NBGPP, as finally approved, is not a relatively straightforward treat-in-place-and-injection-into-the-deep-aquifer VOC remediation plan. It is an elaborate extraction, transport, central treatment and re-injection into the shallow aquifer plan, designed to capture and treat nitrates and perchlorates in addition to VOCs. Many entities, a number of which are now defunct and apparently without traceable assets or insurance coverage, contributed VOC contamination to soil and groundwater

contamination in the North Basin area. Based on the trial evidence, for example, the court could conclude that VOC contamination at the Chicago Musical site was a substantial factor in the decision to remediate VOCs in the North Basin area. the court cannot make that same finding as to any of the Trial Defendants.

None of the trial defendants caused the nitrate or perchlorate contamination, and that problem was a major factor in the decision to approve the more costly, centralized treatment plan. In sum, the Trial Defendants' activities were not a "but for" cause of, or a substantial factor in, the District's decision to approve a centralized water treatment plan for the NBGPP area.

A plaintiff need not prove actual contamination before incurring response costs. But in multiple site cases, where hazardous substances are released at one site and allegedly travel to a different location, persuasive federal decisions have held that the plaintiff must establish "a causal connection" between the defendant's release of hazardous substances and the plaintiff's response costs. (*Kalamazoo River Study Group v. Rockwell Int'l Corp.* (6th Cir. Mich. 1999) 171 F.3d 1065, 1068 ["In a "two-site" case such as this, where hazardous substances are released at one site and allegedly travel to a second site, in order to make out a prima facie case, the plaintiff must establish a causal connection between the defendant's release of hazardous substances and the plaintiff's response costs incurred in cleaning them up.]). A mere possibility of a causal connection is not sufficient. (*Id.* at p. 1072 ["Plaintiff] bears the burden of proof to show that [defendant] did contribute to [contamination], not that it is possible that it might have contributed to the [contamination."]; see also *Thomas v. Fag Bearings Corp.* (W.D.Mo. 1994) 846 F.Supp. 1382, 1390 ["'Fingerprinting' to prove actual contamination caused by the defendant is not necessary where the plaintiff can show that the release or threatened release by the defendant, and not the actual contamination, caused the plaintiff to incur response costs. However, where the response costs are incurred solely as a result of and in response to the actual contamination, the plaintiff must prove that the

release by the defendant actually caused the contamination at plaintiff's site . . . "]; *Control Data Corp. v. S.C.S.C. Corp.* (8th Cir. 1995) 53 F.3d 930, 935, n. 8 ["Even when there is an actual release, a plaintiff must establish a causal nexus between that release and the incurrence of response costs"]; *Santa Clara Valley Water Dist. v. Olin Corp.* (N.D.Cal. 2009) 655 F.Supp.2d 1048, 1057 [Noting that cases within the Ninth Circuit support the conclusion that a CERCLA *prima facie* case requires a plaintiff to show that a release caused the incurrence of at least some of the response costs at issue]; *Carson Harbor Vill., Ltd. v. Unocal Corp.* (C.D.Cal. 2003) 287 F.Supp.2d 1118, 1186 ["The language of the statute requires that plaintiff establish a causal link between the release for which defendant is responsible, and the response costs incurred by plaintiff."].)

The weight of the credible trial evidence failed to establish a causal connection between any Trial Defendant's localized releases of hazardous substances into the soil and costs the District has already incurred and might incur in the future. For example, there is no direct evidence of any release of VOCs to the shallow aquifer in the NBGPP area by any Trial Defendant except Northrop. Northrop caused VOCs to be released into the soil and shallow aquifer, as did any number of other entities not before this court. Although the court found Northrop's historical activities at Kester and Y-12 resulted in shallow aquifer contamination, the Court finds that Northrop, under the Regional Board's oversight, has remediated, or is currently remediating, those contaminant releases to levels exceeding those contemplated by the NBGPP, without the District reasonably incurring any remediation or removal expenses.

On the issue of causation, the Court makes the following findings:

1. There is evidence that each Trial Defendant used one or more VOCs of concern in this litigation in their operations.
2. In addition to VOC contamination, the NBGPP also seeks to address TCP and DCA contamination. (May 3, 2012 TT 2087:1-5.) There is no allegation or evidence that any Trial Defendant released TCP or DCA.

3. There is no evidence that any Trial Defendant operated underground storage tanks.

4. It is more likely than not that entities which were never, or are no longer, defendants in this action contributed to groundwater contamination in the NBGPP area.

5. There is no evidence that the conduct of any Trial Defendant contaminated drinking water supplies or the principal/deep aquifer.

6. In any event, primarily as the result of the levels of subsurface clay layers, rising and falling water table, and groundwater flow, and secondarily, as the result of the District's historical recharge activities, the sources of VOC contamination in the NBGPP area are commingled.

7. The preponderance of the evidence is that the District's recharge activities in the NBGPP area made it more difficult to determine who contributed to VOC contamination in the shallow aquifer. (July 30, 2012 TT 5535:16-19) (Roy Herndon: "in a very broad sense, I know there were areas that we could not identify the source of VOC contamination, and it may have been as a result of this effect (i.e. recharge activities.")

8. There is evidence of nitrate and perchlorate contamination in the NBGPP area. As between Plaintiff and Trial Defendants, Plaintiff bears responsibility for nitrate or perchlorate contamination and all past and future costs to remediate nitrate and perchlorate contamination.

9. There is no direct evidence of any release of VOCs to the shallow aquifer in the NBGPP area by any Trial Defendant except Northrop.

10. The preponderance of the evidence is that VOC releases to the shallow aquifer in the NBGPP area were not caused by any Trial Defendant except Northrop.

11. The preponderance of the evidence is that no conduct by any Trial

Defendant, including Northrop, threatens to contaminate the shallow aquifer in the NBGPP area.

12. The preponderance of the evidence is that no conduct by any Trial Defendant, including Northrop, threatens future contamination of the shallow aquifer in the NBGPP area.

13. The preponderance of the evidence supports a finding that the NBGPP is not necessary to address VOC contamination in the shallow aquifer.

14. The preponderance of the credible evidence supports a finding that the NBGPP is not necessary to prevent VOC contamination in the principal/deep aquifer.

15. The preponderance of the evidence supports a finding that no Trial Defendant's conduct was a but for cause of, or a substantial factor in, the District's decision to proceed with the NBGPP and its plan for centralized water treatment.

16. No substantial evidence supports the finding of a causal connection between the conduct of any Trial Defendant and the District's proposed response, the NBGPP.

17. Substantial evidence supports a finding that there is a causal connection between the conduct of entities other than the Trial Defendants and the District's proposed response, the NBGPP.

Plaintiff and defense witnesses all testified that entities other than Trial Defendants operated in NBGPP area and either could have been or probably were sources for soil and shallow aquifer contamination. As previously mentioned, Dr. Waddell acknowledged he reviewed information or only 103 of the several hundred commercial industrial sites within the NBGPP area that used chemicals of concern. (May 15, 2012 TT 2880:17-2881:4.) As noted above, this court does not make any findings concerning current parties who did not participate in the phase one court trial. There was also adverse

testimony concerning several former defendants (e.g., Fullerton Manufacturing, Gulton Industries, Moore Business forms). Before the phase one trial, the court determined their settlements with Plaintiff were in good faith.

B. The District Failed To Prove That AGFI, Arnold, CBS, or Crucible Released Chemicals of Concern Into Groundwater or Threaten Future Groundwater Contamination

The weight of the evidence establishes that AGFI, Arnold, CBS and Crucible did not release Chemicals of Concern into the shallow aquifer (i.e., groundwater), nor do their past activities threaten future groundwater contamination.

AGFI

AGFI operated at 800 South State College Boulevard in Anaheim. Dr. Waddell admitted "the impact, if any, of PCE . . . from [800 S. State College] to the groundwater is too small to be discernible." (May 18, 2012 TT 3095:21-26.) Dr. Waddell further admitted that he did not know if 800 S. State College would *ever* be a significant source of PCE in the groundwater. (*Id.* at 3095:15-20.) The trial evidence suggested that VOC contamination (both PCE and TCE) in the shallow aquifer under 800 S. State College Blvd. came from one or more upgradient facilities. (May 18, 2012 TT 3095:21-26, TT 3092:26 to 3093:13; August 7, 2012 TT 6300:14-6346:20;

The evidence established that AGFI took over operations at 800 S. State College in late 2002, and decommissioned its only solvent degreaser in early 2003. (May 17, 2012 TT 3058:23-3059:4). Waddell admitted TCE had not been used at the site after 1975 (April 12, 2012 TT 792:19-25; 750:5-15) and releases of PCE into the soil at 800 S. State College ceased sometime before 1993. In Waddell's opinion, the TCE detected in the soil at 800 S. State College was not a threat to groundwater. (May 18, 2012 TT 3082:5-3083:4.)

No VOCs of any kind were detected at 800 S. State College in the main soil borings between the water table and a point approximately 30 feet above the water table.

(Aug. 7, 2012 TT 6302:10-6309:4.) AGFI's expert, Richard Weiss, testified without contradiction that if VOCs passed through the soil column underneath 800 S. State College and into the shallow aquifer, there would have been detectable amounts of VOCs in the lower soil. (Aug. 7, 2012 TT 6306:16-6307:24.)

Thick layers of clay underlying the AGFI site discouraged migration of VOCs from the soil to the shallow aquifer. (*Id.* at 6431:5-6432:3; Aug. 7, 2012 TT 6445:6-6446:10.)

OCWD witness Dave Mark admitted that PCE concentrations declined across the 800 S. State College site from upgradient to downgradient. (May 8, 2012 TT 2492:12-17.) In Weiss' opinion, the chemical composition of the groundwater beneath 800 S. State College matches the chemical composition of the groundwater beneath at least one upgradient site. (*Id.* at 6335:13-6341:19 and Exs. 26012, 21993.)

Despite his opinion that the VOCs in the soil did not pose a threat to groundwater, Dr. Waddell used a trial diagram to demonstrate a hydrogeologic mechanism for VOCs from 800 S. State College to move upgradient along a purported sloped, sub-surface clay layer from beneath the original degreaser area in the AGFI building in a northeast direction (i.e., against the general groundwater flow in that portion of the NBGPP area) to the adjacent Aerojet property. This testimony was critical to Dr. Waddell's causation position vis-à-vis AGFI, as the concentrations of TCE in both the soil and shallow aquifer on the upgradient property exceeded concentrations beneath 800 S. State College by orders of magnitude.

On cross-examination, Dr. Waddell admitted he altered the vertical scale to distort the slope of the clay layer, making it seem more pronounced than it was. (May 18, 2012 TT 3083:5-3085:2.) The decision to vertically exaggerate the scale and present to the trier of fact a visually misleading diagram undermined the witness' credibility with respect to the AGFI site.

Moreover, on direct examination, Dr. Waddell testified only that this "sloped" sub-surface clay layer "could" have provided a mechanism for DNAPL contamination in the

soil to move upgradient towards the upgradient site.[2] (April 12, 2012 TT 762:13-763:11; 802:19-804:1.) "Could have" is less than "probably" and "more likely than not." It is not sufficient to establish causation. (*Kalamazoo River Study Group v. Rockwell Int'l, supra,* 171 F.3d at p. 1072.)

The trial evidence further showed that under the supervision, and with the approval, of the Regional Board, AGFI voluntarily engaged in an ongoing years-long soil vapor extraction (SVE) project at the 800 S. State College Blvd. site to prevent any PCE released there by past operators from getting to groundwater. (Aug. 6, 2012 TT 6169:19-6174:11; 6201:10-17.) As of the time of trial, the SVE system had removed thousands of pounds of solvents, chiefly PCE, from the soil. (*Ibid.*) AGFI's costs to remediate under Regional Board oversight do not qualify as response costs incurred by the District.

ARNOLD

Arnold operated at 1551 East Orangethorpe. In Dr. Waddell's opinion, Arnold was responsible for TCE contamination detected at the Johnson Controls property (located at 1550 E. Kimberly and directly north of the former Arnold site). [May 1, 2012 TT 1975:21-1976:1]. Based on this opinion, Dr. Waddell classified Arnold as a "major" contributor (as opposed to "likely," a classification reserved for an entity where evidence of having caused groundwater contamination was lacking). This court has already found Dr. Waddell's personal classification system to be not credible.

Moreover, the preponderance of the evidence showed that Arnold did not use TCE. No documentary evidence was presented at trial showing that Arnold used TCE. [See, e.g. Exs. 537, 538, 539, 541, 542]. Arnold's only documented historical VOC usage was of 1,1,1-TCA. [Exs. 544, 559].

Plaintiff's percipient witness concerning Arnold's use of TCE was a former Arnold employee, Dan Hopen. Mr. Hopen testified contradictorily that Arnold used TCE, 1,1,1

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[2] DNAPL is the acronym for "dense nonaqueous phase liquid." A VOC is denser than water and tends to sink vertically through soil.

TCE and/or TCA in its degreasing operations. [May 4, 2012 TT 2250:6-8; 2290:4-15]. Mr. Hopen's clearest recollection was that the barrels were labeled "1,1,1." [May 4, 2012 TT 2290:4-17]. This would suggest the VOC was indeed 1,1,1-TCA, as no expert testified there is a chemical denominated as "1,1,1-TCE." [May 10, 2012 TT 2673:14-16; August 21, 2012 TT 6892:24-6893:1]. Moreover, by the time Mr. Hopen began his employment with Arnold in 1978, TCE's use in Southern California had already been restricted. [April 12, 2012 TT 750:16-751:17].

Dr. Waddell's opinion that TCE was historically used by Arnold lacked foundation and was speculative. [May 10, 2012 TT 2690:7-14]. The first soil sampling at the Arnold site occurred in 1995, almost ten years after Arnold left the premises. Arnold occupied the site from 1960 to 1986, and other entities (not parties to this action) operated at the 1551 Site both before and after Arnold's occupancy of the site. [Ex. 23751 at pp. 4-5 (Farmer Depo. at 23:23-24:25); May 1, 2012 TT 1994:25-1995:2; August 21, 2012 TT 6908:15-21.]. The evidence presented at trial and the experts for the District and Arnold agree that the post-Arnold occupants of the 1551 Site were engaged in manufacturing furniture. [April 17, 2012 TT 1015:16-22; August 21, 2012 TT 6908:15-25]. The evidence at trial established that the post-Arnold occupants of the 1551 Site used paints, strippers, solvents, and thinners. [See, April 17, 2012 TT 1015:23-1016:13; August 21, 2012 TT 6908:22-6912:16; Exs. 23670 and 23671].

Given the documentary evidence showing that Arnold used only 1,1,1-TCA (not TCE), Mr. Hopen's unreliable testimony regarding Arnold's VOC use, and the multiple operators at the site that may have released contaminants at the 1551 Site both before and after Arnold's occupancy, the District has not carried its burden of proving that Arnold used TCE during its operations at the Site. Therefore, Arnold is not responsible for TCE detections in soil or groundwater at the Johnson Controls site or any other part of the Project area. .

By the District's own admission, Arnold is not responsible for any PCE

groundwater contamination in the NBGPP area. Dr. Waddell testified that the 1551 East Orangethorpe site had not impacted groundwater with PCE. [April 17, 2012 TT 1081:5-1082:2].

1,1,1-TCA is the one chemical of concern that Arnold undisputedly used at the property. When 1,1,1-TCA enters groundwater, it breaks down to 20% 1,1-DCE and 80% acetic acid (vinegar), which is not a chemical of concern. [April 9, 2012 TT 584:7-9].

Notwithstanding Arnold's acknowledged use of 1,1,1-TCA, there is insufficient evidence that Arnold caused a release of 1,1,1-TCA or 1,1-DCE into soil. The first soil vapor detections of 1,1,1-TCA under the building at the 1551 Site occurred in 2007, approximately 20 years after Arnold left the 1551 Site. Throughout those intervening years, several furniture manufacturers occupied the 1551 Site and used unknown solvents and paints with unknown constituents. [August 21, 2012 TT 6908:22-6909:10].

Given the lack of foundation for Dr. Waddell's opinions, the evidence of subsequent occupants of the 1551 Site and Mr. Rohrer's substantiated expert opinion, there is insufficient evidence to find that the 1,1,1-TCA or 1,1-DCE found in shallow soil vapor on the 1551 Site originated from Arnold. Without a foundation for the opinion that Arnold released 1, 1, 1-TCA into soil (which would have eventually broken down to some extent to 1. 1-DCE), there is no basis for Dr. Waddell's opinion that Arnold's operations contaminated groundwater or threaten today to contaminate groundwater.

Dr. Waddell did not opine at trial that Arnold used 1,4-dioxane or contaminated soil or groundwater with 1,4-dioxane.

CBS

The CBS/Fender facility in Fullerton was formerly located on property presently bearing the addresses of 500 S. Raymond, 1300 E. Valencia, and 700 Sally Place ("CBS/Fender facility"). (RT 04/23/12 at 1136:3 – 1136:9). The District's only allegations and evidence against CBS were for PCE contamination. (RT 04/23/12 at 1154:3 – 1154:5). CBS did use PCE for approximately ten years period at the S. Raymond

location. It was used to degrease the metal parts in only one CBS product, the Rhodes piano. It was stored in an above-ground storage tank.

CBS never used PCE on the properties presently known as 1300 E. Valencia and 700 Sally Place. (RT 08/02/12 at 5795:2 – 5795:6; RT 08/02/12 at 5796:6 – 5797:13). This includes the former paint dip tank area on the western border of the 1300 E. Valencia property. (RT 08/02/12 at 5795:2 – 5795:6).

There were no citations or violations against CBS for PCE usage at the facility. (RT 08/02/12 at 5817:16 - 5817:18). The use, delivery, and disposal of PCE at the facility were all conducted in conformance with environmental standards for PCE handling. (RT 08/02/12 at 5817:19 – 5817:22).

To the extent that shallow soil releases of PCE at 500 S. Raymond are attributable to CBS, such releases have not impacted groundwater and do not pose a present or future threat to groundwater. By contrast, there is an impact to both soil and groundwater from other upgradient sources, including the neighboring Chicago Musical site, as well as a migration pathway from the Chicago Musical site onto the former CBS/Fender property at 500 S. Raymond.

CBS' expert, Dr. Daniel B. Stephens, provided credible and persuasive testimony regarding the soil and groundwater data at 500 S. Raymond. There is evidence of PCE in the shallow soil surrounding the above-ground storage tank and degreaser (approximately 10-30 feet below ground surface) at 500 S. Raymond, consistent with a local release. But the PCE in the shallow soil at this location does not match the suite of VOCs found in the groundwater beneath it. (Ex. 20304 pg. 58; RT 08/02/12 at 5891:16 – 5891:22 & RT 08/02/12 at 5898:12 – 5898:16; RT 08/02/12 at 5907:23 – 5907:25). In other words, the soil profile at the property confirmed that there is no nexus or connection between the PCE in the shallow soils and PCE in the groundwater at levels with historic ranges of 85-120 feet below ground surface. The chemical profile in the groundwater, however, is consistent with chemical mixtures found at Chicago Musical and other sites

east/upgradient of 500 S. Raymond. (RT 08/02/12 at 5896:18 – 5897:12 & RT 08/02/12 at 5897:21 – 5898:16).

The former Chicago Musical site is located at 350 S. Raymond, directly across the street and north of the CBS/Fender facility at 500 S. Raymond. In contrast to CBS' operations, which used mostly wood, Chicago Musical's operations consisted of working with metal and chroming activities in the manufacture of brass instruments. (RT 07/19/12 at 4857:20 – 4858:10). Moreover, Chicago Musical's documented usage and spillage of VOCs is exponentially greater than any alleged level of contaminants found in soil below the CBS site. The soil vapor readings of PCE below Chicago Musical ranged up to 79,000 micrograms per liter. (RT 05/17/12 at 2956:11 – 2956:17).

The District conceded at trial that the owner and operator of the former Chicago Musical site is defunct and lacks any assets. (RT 04/30/12 at 1825:17 – 1826:3). As such, the former Chicago Musical site qualified for orphan share funds, and the California Department of Toxic Substances Control ("DTSC") took action to remediate it. (RT 08/02/12 at 5875:22 – 5875:26; Ex. 20044).

A DTSC contractor, using soil vapor extraction, extracted 16,954 pounds of VOCs in the first few months at the Chicago Musical site, with clean-up efforts continuing thereafter so as to extract thousands of additional pounds of VOCs therefrom. (RT 08/02/12 at 5875:22 – 5875:26; Ex. 20044). Moreover, the soil columns running vertically below the Chicago Musical site show consistent detections of VOCs, including PCE, from surface soils all the way down to groundwater. (RT 05/17/12 at 2954:10 - 2954:16; Ex. 10147 pgs. 168-170).

Lateral migration of contaminants from the Chicago Musical site to 500 S. Raymond occurred in the soil at the stratified sand layer about 40 feet below ground surface. (RT 08/02/12 at 5895:17 – 5895:24). PCE, TCE, and DCE (a degradation product of TCA) are all present beneath the former Chicago Musical site and are also present in the deeper soils beneath 500 S. Raymond. (RT 08/02/12 at 5897:24 –

5898:16). Since CBS did not use TCE or 1,1,1 TCA/1,1,1- DCE in the NBGPP area, the evidence established that these VOCs migrated from Chicago Musical. (RT 08/02/12 at 5897:24 – 5898:16; Ex. 20304 pg. 58).

Almost thirty years after CBS ceased operations at 500 S. Raymond, PCE does remain at shallow soil depths. This soil contamination is subject to retardation and the stratigraphy of the soil, including the presence of clay layers. (RT 08/03/12 at 6118:11–6119:17; RT 08/03/12 at 6129:22 – 6129:26). The extensive field work directed by Dr. Stephens at this location and his resulting analysis of all of the data for the site confirm that any PCE in soil at the CBS properties – even that which migrated to soils below the CBS site from the Chicago Musical site – has dissipated to non-detect levels at before the water table is reached. This PCE does not threaten groundwater in a level that exceeds the maximum contaminant level ("MCL") for drinking water. (RT 08/03/12 at 6125:17 – 6125:25).

Former CBS employee Jon Cherry testified CBS never used PCE at 1300 E. Valencia or 700 Sally Place, although three unopened 55-gallon drums were stored at E. Valencia for a brief period and then removed from the site. (RT 08/02/12 at 5807:6 – 5807:11; RT 08/02/12 at 5796:6 – 5797:13). CBS used the area now known as 700 Sally Place as a paved parking lot and did not use or store PCE there. (RT 08/02/12 at 5797:8 – 5979:13).

With respect to 1300 E. Valencia, the District's claim against CBS was founded on a detection of PCE in soil near the former paint dip tank area at the western border of 1300 E. Valencia, across the alleyway from one of the former Monitor Plating sites. (Ex. 20009; RT 05/17/12 at 2979:3 – 2979:6). Although Dr. Waddell testified the Monitor Plating site likely caused the TCE contamination found in the deeper soils underneath 1300 S. Valencia, he maintained CBS was responsible for PCE in the shallower soil at the same location. He did admit that the PCE detections at do not go all the way from just below the surface to the groundwater. (RT 04/23/12 at 1231:12 - 1231:15.)

The 2002 ARCADIS soil and groundwater investigation supports the lack of nexus as well. The ARCADIS report indicates that in the area of the former paint dip tank:

> [T]he impact of VOCs in the vadose zone (the unsaturated zone above groundwater) was limited to a depth of 70 ft. bgs. This was confirmed by the collection of four soil samples from depths of 80, 90, 100 and 110-feet bgs, which did not exhibit the presence of VOCs in concentrations above laboratory detection limits. (Ex. 507B pgs. 17-18).

Adrian Brown Consulting took grab samples in the shallow aquifer underneath 1300 E. Valencia in 2009. As the court has previously indicated, the use of one-time grab samples does not provide substantial or credible evidence of contamination or a threat of contamination. Here, however, the one-time grab samples at locations upgradient and downgradient of 1300 E. Valencia, including one sampling next to the western border of the property where CBS formerly had its paint dip tank (adjacent to the former Monitor Plating location), demonstrated no impact to groundwater at this location. (Ex. 10147 pg. 193).

Furthermore, the evidence also showed no *threatened* impact to groundwater at this location. The Regional Board determined the western border of property was only a *possible* impact location. (Ex. 10667 pg. 4). In 2003, the Regional Board, which considered data gathered from investigations such as that by ARCADIS, also issued a No Further Action letter for the entirety of the 1300 E. Valencia property. Upon closing its investigation, the Regional Board noted the presence of off-site sources of contamination that were unrelated to either CBS' former paint dip tank area or the subsequent occupier of the premises, MAG (in whose favor judgment was granted after the close of plaintiff's case in chief). (Ex. 10667).

The No Further Action letter provides in part as follows:

> Based on the low concentrations and small amount of groundwater, and the existence of an off-site source, the site does not appear to pose a current, significant threat to the beneficial uses of groundwater...no further action with respect to soil and groundwater investigation or remediation at this site is necessary. (Ex. 10667 pg. 5).

Concerning 700 Sally Place, on November 15, 1995, the Regional Board issued a Site Closure Letter. (Ex. 20259 pg. 2).

As with Chicago Musical's impact to 500 S. Raymond, Dr. Waddell also admitted there are various potential sources of PCE contamination near 1300 E. Valencia that could have, and did in fact, impact groundwater, and that he is unable to distinguish among those sources:

> A: It's my opinion that that contamination has commingled with contamination from other sites. There are – like I said, American Electronics is a source of PCE. EDO Gulton is a source of PCE. So there's upgradient sources that have contributed to PCE. In addition the PCE that was released at Chicago Musical Instruments will also commingle with the contamination from that area as it moved downgradient, that – because the sources are so close together, they're going to commingle pretty intimately.
> (RT 04/23/12 at 1227:20 – 1228:3).

Dr. Waddell also stated that 1300 E. Valencia sits over a groundwater "convergence zone" where contaminated groundwater from multiple upgradient sources has migrated. (RT 05/15/12 at 2886:10 - 2886:16 & 2887:9 - 2887:19 & 2888:2 – 2888:4). He estimated that as many as 12 different sources are impacting 1300 E. Valencia from the east and southeast. (RT 05/15/12 at 2887:13 - 2888:4 & RT 05/15/12 at 2932:19 - 2932:23).

Accordingly, since much of Dr. Waddell's testimony did not comport with the facts presented at trial, lacked foundation, in some cases contained material mis-statements, and was otherwise founded on speculation, particularly as it related to causation, the Court does not credit his opinions regarding CBS' alleged liability.

Crucible

Crucible ceased operations at 2100 E Orangethorpe Avenue in Fullerton in 1984. Since that time, the site has been used primarily for storing recreational vehicles.

Relying primarily on one-time grab samples taken at the edges of and at locations adjacent to 2100 E. Orangethorpe, the District sought to prove Crucible caused or threatened to cause groundwater contamination. The District pursued this avenue

despite the fact that VOC contamination levels in the shallow aquifer underneath the Crucible site were less than the targeted treatment goals for the NBGPP. (April 26, 2012 TT 1609:22-25.)

Dr. Waddell's opinion on this point was not based on experience in evaluating sites for soil contamination. In fact, Dr. Waddell had never conducted an evaluation of a client-owned site to determine whether the site was contaminated (May 17, 2012 TT 3032:1-5), nor had he ever advised a client as to the significance of a "non-detect" reading in a soil sample. (May 17, 2012 TT 3032:16-19.) Waddell has never performed, supervised, or directed tests to identify the presence of DNAPL (May 17, 2012 TT 3032:23-3033:1) and he did not know whether there is a standard practice in the environmental consulting community that is used to delineate the extent of contamination is soil. (May 17, 2012 TT 3033:17-21.)

Dr. Waddell acknowledged that soil vapor sampling points circled the former degreaser on the Crucible site. (May 17, 201 TT 3001:1-6). He agreed the deepest soil vapor sampling points at the site were 40 feet below the surface, well above the shallow aquifer. Even at that relatively shallow depth, the samples were all non-detect for TCE, PCE, 1,1-DCE, and TCA. (May 17, 2012 TT 3001:20-3002:6.)

The relatively shallow depth for the soil vapor and one-time grab samples at the Crucible site was significant because, unlike most of the NBGPP area, in 2011 when samples at this and adjacent sites were taken, the direction of groundwater flow in the perched zone (closer to the surface than the shallow aquifer) was west to east. (August 13, 2012 TT 6774:11-14.) Eventually Dr. Waddell agreed with Crucible's exert, Dr. Kopania, on this point.

Plaintiff's causation evidence stands in stark contrast to that presented by Crucible.

On May 4, 1984, in a memorandum from the Regional Board to the Department of Health Services (DHS) regarding the 2100 E. Orangethorpe Site Closure Plan, the

Regional Board wrote: "We have, however, reviewed the plan and inspected the facility with respect to its impact on water quality. During the inspection, small areas of soil contaminated with waste oil were noted on the south side of the plant. Mr. Harry Murphy, Plant Manager, stated that soil in these areas will be removed to a depth of three feet during closure. This is not included in the closure plan. With the above exception, no problems were noted during the inspection or in our review of the closure plan as submitted." (Ex. 11813-31).

In December 1984, as part of Crucible's closure of the 2100 E. Orangethorpe Site, soil sampling detected VOCs in shallow soil ranging from depths of 3.5 feet to 10 feet. (Ex. 11813-72-78; Ex. 392 for completeness.) The analytical results from the boring samples confirmed the presence of VOC contamination at low levels near the rear of the manufacturing building and VOC contamination at a higher level near the back fence adjacent to Vista Paint's solvent storage area. (Ex. 11813-8.). In February 1985, remedial action was conducted at the 2100 E. Orangethorpe Site in the form of excavation and transport off-site for disposal of the VOC contaminated soils. (Ex. 11813-9, 10, 75, 91-95, 104-108, 111-128.)

In March 1985, a Facilities Closure Report was submitted to the DHS for the 2100 E. Orangethorpe Site, which set forth a detailed description of site closure activities, site assessment, and site remediation activities. (Ex. 11813.) On April 16, 1985, DHS approved closure of the 2100 E. Orangethorpe Site; and in September 1986, the DHS conducted a post-closure inspection. (Ex. 11816-5, 12.)

On September 15, 1991, a RCRA (Resource Conservation and Recovery Act) Preliminary Assessment of the 2100 E. Orangethorpe Site was prepared for the US Environmental Protection Agency (EPA) as part of the latter's Environmental Priorities Initiative program for the clean-up of the most environmentally significant properties. (Ex. 11816-2.) The RCRA Preliminary Assessment noted that no release of contaminants to the groundwater had been documented at the 2100 E. Orangethorpe Site. (Ex. 11816-9).

The RCRA Preliminary Assessment also noted the National Contingency Plan authorized the US EPA to consider emergency response actions at those sites posing an imminent threat to human health or the environment, but there was no need for a referral of the Crucible site to US EPA's Emergency Response Section because all the known wastes had been removed. (Ex. 11816-10.)

In May 2000, the DTSC prepared a RCRA Facility Assessment for the Crucible site to evaluate whether it contributed to groundwater contamination. (Ex. 397-18.) A groundwater investigation was recommended only if soil-vapor tests and/or soil analysis indicated the presence of VOCs in the soil at that site. (Ex. 397-18.)

Pursuant to an August 30, 2002, work plan prepared by Frey Environmental on behalf of La Barron Investments, and approved by the DTSC, soil and soil gas sampling was conducted at 2100 E. Orangethorpe. (Ex. 11856 & 11857). VOCs were not detected above the laboratory detection limits of 5 ug/kg in soil samples from seven boring locations agreed to by the DTSC ranging in depth from 1 to 20 feet. (Ex. 399-18, 24, & 31(figure).) The soil vapor sampling for VOCs was conducted in nine locations agreed to by the DTSC ranging in depth from 5 to 20 feet. (Ex. 399-10, 16, 23, & 31 (figure).) Frey Environmental concluded the soil vapor samples yielded either relatively low concentrations of VOCs or "non-detects." (Ex. 399-18, 19 & 23.)

On July 23, 2003, pursuant to a request by the DTSC for further soil vapor sampling at 2100 E. Orangethorpe, Frey Environmental submitted to the DTSC the results of the requested sampling (Ex. 400.) The soil vapor sampling for VOCs was conducted in twelve locations agreed to by the DTSC and ranging in depth from 5 to 40 feet. (Ex. 400-10, 11, & 29 (figure).) All sampling conducted at 40 feet were non-detect. (Ex. 400-25.) Frey Environmental concluded the lateral and vertical extent of VOCs had been adequately assessed and recommended that no further action be required for the site because "the low concentrations of VOCs where present beneath the Site, do not present a threat to human health or groundwater beneath the Site." (Ex. 400-15 & 16.)

On July 8, 2005, the DTSC approved the Revised RCRA Facility Investigation Report for the Crucible site, concluding no further investigation was necessary. (Ex. 401.)

There was considerable testimony and evidence concerning the potential for contamination of the soil under the Crucible site as the result of migrating VOCs from adjacent facilities owned by party and non-party entities. The court finds the evidence presented concerning non-parties persuasive as to the likely cause of soil contamination at the Crucible site. The court may not make a similar finding as to evidence concerning cross-defendants at this point, as they did not participate in the phase one court trial.

David Mark, the District's Project Manager for the NBGPP, prepared the District's 2008 Composite VOC Plume Map. (May 3, 2012 TT 2102:17-19.) The 2100 E. Orangethorpe site is located in the District's 2008 Composite VOC Plume Map in a light blue plume, which the District advised represents an area where PCE, TCE, and 1,1-DCE concentrations are up to 5 times the MCL for drinking water. (Ex. 695-1.) However, Mr. Mark admitted that at the time he prepared the District's 2008 Composite VOC Plume Map, he did not have any groundwater data at or immediately adjacent to 2100 E. Orangethorpe (May 8, 2012 TT 2531:24-2532:2) so he extrapolated that result using nearest groundwater data where either TCE, PCE, or 1,1-DCE exceeded the MCL. That data was approximately 2400 feet downgradient from 2100 E. Orangethorpe at MW-24S. (May 8, 2012 TT 2532:3-21.) Mr. Mark also admitted that at the time he prepared the District's 2008 Composite VOC Plume Map, he did not know whether or not the groundwater contamination under 2100 E. Orangethorpe was greater than the MCL for TCE, PCE, or 1,1-DCE. (May 8, 2012 TT 2531:24-2532:2.) The 2008 Composite VOC Plume Map provides only speculative data insofar as Crucible is concerned.

Northrop

Northrop owned or operated three sites located in Anaheim at the far western portion of the NBGPP area; EMD is located at 500 East Orangethorpe Avenue; Y-12 is located at 301 East Orangethorpe Avenue; and Kester Solder is located at 1730 North

Orangethorpe Park. EMD and Y-12 are contiguous and Kester Solder is approximately 1,500 feet to the east. (July 26, 2012 TT 5197:3-16.) In addition, Northrop operated facilities at Y-19 located at 1401 East Orangethorpe, Fullerton; the District did not claim at trial that any operations at that location caused or threatened to cause groundwater contamination.

Northrop - EMD

The EMD facility is the largest of the three Northrop sites. (July 26, 2012 TT 5196:25-5197:5.) Northrop purchased the EMD site in 1951. (April 27, 2012 TT 1639:15-19.) There were several buildings on the site, the largest of which was the Y-1 building, which was about 250,000 sq. feet, located along the northeastern portion of the property. (April 27, 2012 TT 1660:23-1661:3.) A degreaser was operated within the anodic room in Y-1; there were also degreasers in the Y-2 building, which was south of the Y-1 building and towards the central portion of the property. (April 27, 2012 TT 1661:12-21.)

Northrop operated the EMD facility for 38 years and used TCA and TCE in its degreasers for the most of those years. (July 27, 2012 TT 5445:16-22.) TCA was used as a solvent at EMD for approximately 11 years and TCE was used for approximately 36 years. (July 27, 2012 TT 5447:11-20.) There were releases of both TCE and TCA at EMD. (July 26, 2012 TT 5272:17-22.) The releases were primarily in the Y-1 building at and near the anodic room. (April 27, 2012 TT 1643:8-20.) There were also releases in wastewater. (*Ibid.*)

The District presented no evidence that PCE was ever used at EMD. Dr. Waddell suggested that Monitor Plating (located to the east and upgradient of EMD) is the source of all PCE contamination and some TCE contamination found in the groundwater beneath EMD. (April 27, 2012 TT 1665:13-1666:4; 1696:16-24; May 10, 2012 TT 2768:9-12.)

Upon discovery of contamination at the site, Northrop's consultants performed a

comprehensive investigation. Site closure occurred in 1991, and all on-site buildings were demolished and removed. (July 26, 2012 TT 5275:24-5276:9.) More than 1,600 soil samples and soil vapor samples were collected by Northrop and its consultants from 130 different sampling points. (July 26, 2012 TT 5274:5-21.)

Northrop's remediation efforts involved soil excavation and site assessment, followed by soil vapor extraction and then further excavation to a clay layer at a depth of approximately 40 feet below ground surface. (July 26, 2012 TT 5276:10-5277:5.) Remediation activities were performed under the supervision of both the Regional Board and the Orange County Healthcare Agency (OCHA), with a clean-up standard of a total VOC concentration of 1 ppm for the site. (July 26, 2012 TT 5278:20-5279:13.) Cleanup standards are set by the Regional Board based upon its determination of the level of contamination that could pose a threat to groundwater. (May 10, 2012 TT 2720:18-22.)

Following completion of remediation and closure, both the Regional Board and the OCHA issued no further action letters in 1991. (Exs. 12613 and 15314.) In its no further action letter, the Regional Board stated that remediation activities "indicate that the VOCs that remain in the soil at the site do not appear to be present in concentrations that would result in a significant impact on water quality". (Ex. 12613-1.) The Regional Board concluded, "Data from the eight monitoring wells that previously existed at the site and the six monitoring wells that were recently installed at the site indicate that the VOCs present in the soil have apparently not significantly impacted water quality. The concentrations of VOCs in the shallow groundwater beneath the site are currently below the State Drinking Water Maximum Contaminant Levels, indicating that any impacts to the shallow groundwater from VOCs in the soil at this time are minimal." (Ex. 12613.) The Court finds the weight of credible evidence supports a finding that the EMD site, following remediation in 1991, did not then and does not now present a significant threat to groundwater quality.

Even Roy Herndon, the District's chief hydrogeologist, admitted the soil cleanup at

EMD was "a thorough and comprehensive project from a soil remediation standpoint and Northrop can be commended for this effort." (Ex. 11445-2.) Dr. Waddell admitted he was not alerted to this statement and failed to consider it in reaching his conclusion on site characterization. (May 10, 2012 TT 2723:8-2724:3.)

After receipt of the "no further action" letters, Northrop conducted additional groundwater monitoring for several years and the results were reported to the Regional Board. The Regional Board concluded in 1993 that "contaminants in groundwater beneath the site probably originate from an off-site source." (Ex. 11459-1.) Indeed, the District itself concluded that "on-site groundwater contamination may have originated from an unknown upgradient source east of the Northrop site." (Ex. 15325-2.) In addition, approximately 600 soil samples were collected at the site after closure and none exceeded the approved cleanup level. (July 26, 2012 TT 5288:13-21.)

The EMD site investigation was very rigorous. Northrop's expert Tofani testified that he has never seen a site more heavily investigated than EMD in his many years of experience. (July 26, 2012 TT 5288:22-24.)

Waddell's opinion that TCE and DCE contamination at EMD is a cause of the District's response costs was based upon sampling data taken before remediation at the site in 1991. For example, he testified there were TCE concentrations at EMD of 140 ppb that required remediation. (April 27, 2012 TT 1684:18-1685:5.) On cross-examination, however, he acknowledged the sample of 140 parts per billion was taken in 1989 (May 10, 2012 TT 2727:26-2728:2) and that no sample taken at any monitoring well at EMD over the past twenty years had shown levels even as high at 40 ppb. (May 10, 2012 TT 2729:12-2730:3.) Again under cross-examination, he conceded the earlier 140 ppb sample result also showed a PCE level of 9 ppb that was attributable to Monitor Plating. Finally, Dr. Waddell acknowledged that he was unable to determine the extent to which Monitor Plating contributed to the TCE sample showing 140 ppb. (May 10, 2012 TT 2731:1-6; 2732:4-7; 2733:5-8.)

The evidence established that EMD is adequately remediated and the Regional Board's conclusions in this regard are supported by the trial evidence. Furthermore, in 2010, the District performed additional soil and groundwater sampling and testing at EMD. Waddell was responsible for selecting the location of sampling sites and chose locations based upon his determination as to where the greatest contamination had occurred or was expected to be found at the site. (May 10, 2012 TT 2734:8-11; 2735:6-16.) Fifty-five soil samples were collected and none showed VOC levels in excess of the cleanup goal of 1 ppm. (May 10, 2012 TT 2725:9-18.)

Further, the groundwater sampling taken in 2010 refutes the notion that past releases at EMD have caused the District to engage in any remedial action. Waddell admits the 2010 groundwater samples demonstrate only low levels of contamination and that these low levels are entirely consistent with levels of contamination coming onto the site from upgradient sources. (May 10, 2012 TT 2736:20-2737:3; 2741:13-22.) The highest concentration of TCE at any of the samples taken in 2010 was 4 ppb which is less than the MCL, and is consistent with upgradient sources. (May 10, 2012 TT 2736:20-23.) The highest concentration of DCE in 2010 was 7.3 ppb, which is slightly above MCL, but no higher than DCE concentrations from groundwater samples upgradient of EMD. (May 10, 2012 TT 2741:13-15.) This data demonstrates there is no perceptible contribution from the EMD site to groundwater contamination as groundwater passes below EMD. (July 26, 2012 TT 5305:5-11.)

The District's evidence largely ignored Northrop's clean-up efforts and the role of the District's compatible and complementary government agencies charged with oversight and responsibility for ensuring soil and groundwater contaminant remediation. Indeed, both the agencies involved in the Northrop clean-up efforts have primary responsibility for soil contamination, while the District's charge is directed to surface and groundwater contamination and threats of contamination to same. The District's evidence made no attempt to demonstrate that conditions had changed at this Northrop

site since the cleanup and no further action letters. The District's evidence concerning shallow aquifer contamination or the threat thereof attributable to Northrop's EMD site was not persuasive.

A further basis for the Court's conclusion that activities at EMD are not a cause of the NBGPP or any other remedial action costs incurred by the District is Waddell's admission that the District's proposed treatment plant will not capture or treat any of the groundwater containing elevated VOC concentrations which may have been present in the groundwater when sampling was conducted in the late 1980s. Waddell had admitted any contaminated water passing beneath EMD at that time has long since migrated beyond the District's extraction wells and that EW-4 (the extraction well which Waddell believes would capture any contaminated groundwater flowing beneath EMD) will capture only water that is either currently passing through EMD or will soon be passing through EMD. (May 10, 2012 TT 2738:17-2739:16.)

The District's 2005 plume map shows relatively little contamination at the EMD site. (Ex. 943.) The Court has already indicated it viewed with distrust the 2008 plume map which purports a large area of greater than 10x MCL VOC contamination because Mark's testimony establishes that the 2008 data does not support the interpretation of the extent and concentration of VOC contamination depicted on the 2008 plume map. (May 8, 2012 TT 2459:23-2460:23; 2466:18-2468:21.)

The District argued that EMD was a source of 1, 4-dioxane contamination. This contention was based on one grab sample taken by the District downgradient of EMD in May 2009, which supposedly showed a 1,4-dioxane concentration of 11.7 ppb. According to the District, this sample demonstrates that EMD is a source because that data point is higher than any upgradient 1,4-dioxane concentrations. The Court rejects the District's contention on multiple grounds.

First, the Court finds evidence of contamination based on a one-time grab sample too unreliable to provide substantial or credible evidence of contamination by a defendant

(see *supra*). Second, the District's contention is in conflict with the testimony of its own expert, Dr. Waddell, who, when asked to identify the contaminants from EMD that impacted groundwater, listed only TCE and DCE. (April 27, 2012 TT 1685:6-15.) In fact, Waddell opined that one or more locations upgradient of EMD were responsible for 1,4-dioxane contamination and were the source of the largest 1,4-dioxane reading anywhere in the NBGPP area, namely, 691 ppb. (May 1, 2012 TT 1983:16-1984:1; May 15, 2012 TT 2831:11-23.)

Northrop – Kester Solder

Northrop acquired the Kester Solder site in 2001 at or about the time operations at the site ceased. (April 24, 2012 TT 1351:22-1352:25.) PCE was stored at the site in 55-gallon drums in a chemical storage area on the east side of the chemical mixing and storage room, and PCE was mixed and repackaged at the site. (Ex. 1051-2.) Releases of PCE occurred in the drum storage area along the eastern edge of the site. (July 26, 2012 TT 5197:18-24.) Early testing at the site confirmed the presence of PCE in the shallow soil, perched zone and groundwater under the site. (April 24, 2012 TT 1302:9-15.)

As with the EMD site, Northrop commissioned an extensive soil and groundwater investigation at Kester. (July 26, 2012 TT 5201:2-12.) The Regional Board approved Northrop's investigation and pilot test for soil remediation. (July 26, 2012 TT 5202:2-21.) The pilot test was successful and led to a remedial action plan ultimately approved by the Regional Board. (July 26, 2012 TT 5202:25-5203:10.) Northrop implemented the soil vapor extraction (SVE) system from October 2007 until June 2009, removing almost 1,000 pounds of VOCs. (July 26, 2012 TT 5205:4-17.) The Regional board issued a no further action letter regarding soil on December 17, 2010. (July 26, 2012 TT 5205:14-23.) The effect of the soil cleanup was to remove the source of potential groundwater contamination. (July 26, 2012 TT 5206:8-12.)

VOCs remain in the perched zone at the Kester site. Northrop continues to

remediate that zone under the Regional Board's supervision. At the time of trial, the Regional Board was evaluating Northrop's latest Remedial Action Plan (RAP) (July 26, 2012 TT 5208:13-15).

The District's evidence ignored the role of the Regional Board, whose duty it is to oversee and ensure completion of remedial activities at the Northrop site. Moreover, although contamination in the perched zone remains to be addressed, under the direct oversight of the Regional Board, PCE concentrations have fallen substantially since completion of soil remediation. (July 26, 2012 TT 5215:14-5216:8.)

The Court rejects Dr. Waddell's opinion that Kester remains a source of groundwater contamination. Waddell's testimony that current upgradient concentrations are three times lower than downgradient samples was unsupported and inconsistent with the data. The weight of evidence is to the contrary. Northrop's expert, Dr. Tofani, compared current contaminant levels in each of the four monitoring wells on the Kester property with contaminant levels from all upgradient wells. That data demonstrated that PCE concentrations in the monitoring wells screened in the shallow aquifer beneath Kester are consistent with concentrations from the upgradient wells. (May 15, 2012 TT 2813:11-19; Ex. 15765-A, Table 2; July 26, 2012 TT 5221:16-21, TT 5223:18-5224:12; Ex. 15714-2.)

Furthermore, as Tofani explained, even if any groundwater contamination were to escape the Kester site, Northrop's Y-12 in situ circulation treatment well will capture it. (July 27, 2012 TT 5343:7-26.) Dr. Fogg's modeling demonstrates the efficacy of the Y-12 extraction well. (Ex. 15977, pp. 10-11.)

Accordingly, Kester is no longer a source of further PCE contamination and as a result of soil remediation, is not contributing to PCE contamination in the shallow aquifer. The Regional Board is properly exercising its jurisdiction over Northrop's remediation efforts at this site. The Court therefore finds that Kester does not pose a threat to groundwater and has not caused the need for the NBGPP. (July 26, 2012 TT 5208:19-

25; 5224:2-12.)

Northrop – Y-12

Northrop has also conducted extensive investigation and remediation at its former Y-12 property under the supervision of the Regional Board. The building at the site was constructed in 1962. Operations there ceased in 1994. (April 24, 2012 TT 1354:11-15; 1355:13-18.) Operations required both the use of a degreaser and a quench tank, which was used to cool the floor beams after heat treatment had been applied. (April 24, 2012 TT 1358:3-17.) The quench tank was cleaned periodically with TCE. (April 24, 2012 TT 1358:16-17.) Without dispute, TCE was released in the area of the quench tank that have impacted groundwater. (July 26, 2012 TT 5225:2-4.)

PCE was not used by Northrop at Y-12. (May 10, 2012 TT 2778:23-25; Ex. 1041-19.)

Relying on data from the Membrane Interface Probe ("MIP") taken by Northrop's consultant, Dr. Waddell initially testified that Y-12 is a source of TCE and PCE contamination. During direct examination, Waddell opined the higher levels of PCE in the shallow soils pointed to Y-12 being the source of contamination on its site as well as on an adjacent site. This testimony was impeached on cross-examination, however, when Waddell admitted that facts were "the exact opposite" of what he had testified to on direct and that, in truth, the shallowest significant contamination and the highest soil concentration of PCE was on adjacent property. (May 10, 2012 TT 2797:10-16.) Moreover, Waddell also failed to take into consideration extensive soil gas data testing performed at the time of the MIP tests, which also pointed to another entity as the PCE source. (May 10, 2012 TT 2797:17-2801:10.) The evidence established that Y-12 is not a source of PCE groundwater contamination. (July 26, 2012 TT 5240:12-21.)

After Northrop closed its operations, it commenced a site investigation followed by a limited initial investigation, which did not identify any significant soil contamination. Based on that data, the Regional Board issued a no further action letter for soil, but it

required ongoing groundwater monitoring. (July 26, 2012 TT 5225:17-5226:7; 5226:8-24.) The Regional Board later withdrew its no further action letter because the subsequent groundwater data signaled that an onsite source remained. After that withdrawal, a thorough investigation was performed to characterize and to delineate the extent of contamination. (July 26, 2012 TT 5226:25-5228:16.)

By 2008, the investigation had been completed and Northrop obtained approval from the Regional Board of a Remedial Action Plan providing for SVE and dual phase extraction. (July 26, 2012 TT 5243:9-5244:7.) The remedial system was started in August 2008, and, to date, has extracted, approximately 20,000 pounds of VOCs. (July 26, 2012 TT 5244:17-19.) Recent modeling results indicate that 98% of the contamination at the site, (including the contamination in the perched zone) has been remediated. (July 26, 2012 TT 5246:2-15.) Soil remediation is targeted for completion by 2014, at which time the site will no longer be a source of groundwater contamination. (July 26, 2012 TT 5246:16-26.)

As with its other sites, Northrop has been working with the Regional Board. (July 26, 2012 TT 5247:1-6.) With approval from the Regional Board, a circulation well was installed on the downgradient edge of the property to capture and decontaminate VOC impacted groundwater from the shallow zone. (July 26, 2012 TT 5247:8-23; 5252:11-20.)

Tofani testified the circulation well has been effective in reducing VOC to drinking water standards. (July 26, 2012 TT 5267:4-9.) Tofani further testified, based on data from downgradient monitoring wells that the contaminants have dropped significantly in response to the soil and groundwater remediation activities. (July 26, 2012 TT 5267:10-17.) At the time of trial it was estimated that remediation of the perched zone would be completed by 2014, at which point the circulation well will no longer be necessary because the site will no longer be a source of elevated VOCs. (July 26, 2012 TT 5272:5-15.)

Dr. Fogg testified as to the efficacy of the Y-12 circulation well. He acknowledged

that treatment at CW-1 (Northrop's circulation well) will reduce contaminant levels to below MCLs and was more effective in reaching MCLs than the District's EW-3. (Ex. 15977, p. 10-11.)

The evidence establishes that the NBGPP is not necessary to address Y-12 contamination because the source of the contamination at Y-12 is in the process of remediation under a responsible agency. (July 26, 2012 TT 5267:4-6; 5342:18-5343:6.) Accordingly, the Court concludes that Y-12 is being adequately remediated and that contamination at the site has not caused, and will not cause, the District to incur remedial action costs.

VII. THERE IS NO BASIS FOR ALLOCATING FUTURE NBGPP COSTS TO ANY TRIAL DEFENDANT

The District had not approved the NBGPP by the time the phase one trial commenced. By the time the phase one trial concluded, the NBGPP had been approved, but the District had not committed to going forward with it. Nonetheless, at the conclusion of the phase one court trial, the District sought a declaration that all Trial Defendants were jointly and severally liable for all future remediation costs of all contaminants in the NBGPP area, whatever the ultimate plan would be and whatever those costs might be. The District contended the Trial Defendants were responsible for the costs to remediate all contaminants, including nitrate, perchlorate, TCP and DCA contamination they indisputably did not cause. Alternatively, the District contended each Trial Defendant's allocation should be calculated by identifying the extraction well its alleged contamination would flow into and the cost to transport that extracted contamination back up to the centralized treatment facility.

The District's joint and several liability argument assumes the District proved that each Trial Defendant contaminated or threatens to contaminate groundwater and that each such Trial Defendant is responsible for all NBGPP costs, including the extra costs to treat not only the contamination it is proven to have caused, but also all other

contamination the District chooses to treat. The joint and several liability argument assumes the District proved a causal connection between the activities of the Trial Defendants and the need to incur response costs. However, the District did not persuade the trier of fact by a preponderance of the evidence that AGFI, Arnold, CBS, or Crucible contaminated groundwater or threatens to contaminate groundwater in the NBGPP area. While the evidence demonstrated that Northrop's activities did result in soil and shallow aquifer contamination, the evidence also established that Northrop has successfully remediated or is currently remediating those contaminant releases under appropriate agency supervision to levels designed to exceed the treatment goals contemplated by the District's NBGPP, without the District reasonably incurring any remediation or removal expenses. The District did not persuade the trier of fact by a preponderance of the evidence that there was a causal connection between the Trial Defendants' activities and the need to incur response costs.

As between the Trial Defendants and the District, the District is responsible for all remediation costs attributable to nitrate and perchlorate contamination. There is no statutory or equitable principle that justifies holding the Trial Defendants liable on any theory, much less a joint and several one, for nitrate, perchlorate, TCP or DCA contamination. This is particularly so as the treatment options for nitrate and perchlorate contamination differ from, and are more expensive than, those for VOC contamination.

Regarding VOC contamination in the NBGPP area, the evidence demonstrated the subsurface conditions made pinpointing the source of any particular contamination difficult. Nevertheless, the evidence is overwhelming that many entities other than the Trial Defendants contributed to VOC releases into the soil and groundwater in the NBGPP area. In addition, the District's recharge activities contributed not only to VOC contamination in the shallow aquifer, but also contributed to the commingling of different-sourced VOC contaminants, making it more difficult, if not impossible, to determine the potentially responsible party.

The Court further finds that the conduct of the District and entities other than the Trial Defendants are a substantial factor in the District's decision to develop the NBGPP. There is no factual basis for allocation of responsibility for past or future expenditures among the Trial Defendants or as between one or more Trial Defendant and the District.

VIII. SUMMARY OF CONCLUSIONS

Trial Defendants were literally a handful of several hundred entities that used VOCs and other hazardous substances before the turn of this century in the North Basin area of Orange County. The District proceeded to the phase one trial against these five defendants on the theory that they more likely than not released those VOCs into the soil, where they migrated to and contaminated the groundwater/shallow aquifer and posed a continuing threat to the deep/principal aquifer.

The District prepared the NBGPP to remediate to some extent (but not to eradicate) the contamination in the shallow aquifer, thereby protecting the drinking water supplies in the deep aquifer. The NBGPP has been designed also to remediate, but not eliminate, perchlorate and nitrate contamination in the shallow aquifer.

On one hand, the District took the position that these five defendants were liable for all future remediation costs, even those attributable only to nitrate and perchlorate remediation (which Trial Defendants indisputably did not cause) simply because they operated in the NBGPP area and contaminated shallow aquifer groundwater flowed beneath their sites.

Given the hydrogeology in the NBGPP area, the evidence established that groundwater contamination under one particular property more likely than not flowed there from upgradient sources. These upgradient sources also included the historical recharge activities by the District itself.

Putting aside for the moment that by the time of trial the District had expended only about two percent of the more than $200,000,000 it intended to spend on the NBGPP, if in fact that plan was implemented (a decision the District has not yet

made), it was incumbent upon the District to establish a causal connection between each defendant's conduct and the decision to implement the NBGPP and that the Trial Defendants were a "but for" cause or substantial factor in the design decisions for the NBGPP. Defendants were entitled to establish that the NBGPP was neither necessary nor reasonable in terms of cost. The trial defendants satisfied their burden; the District did not.

Moreover, as to AGFI, Arnold, CBS and Crucible, the District did not prove either groundwater contamination or a threat to groundwater contamination. Groundwater contamination was proven as to Northrop. But Northrop and several other defendants had worked or were working with the public agency primarily responsible for soil and groundwater remediation, the Regional Board. The District made no effort at trial to demonstrate why the Regional Board's oversight was not sufficient or why Trial Defendants were not entitled to rely on the Regional Board's conclusions that no future threats existed on their properties.

Further,

1. Because no remediation has occurred and no immediate threat to groundwater has been shown by a preponderance of the evidence, neither of the predicate conditions under section 40-8 (b) of the Water Code to impose liability and establish the right to reimbursement are satisfied. Therefore, the District cannot prevail on the first cause of action brought pursuant to the Water Code – Appendix section 40-8.

2. The Orange County Water District Act distinguishes between investigatory costs in section 8 (a) and the costs of remediation in section 8 (b). Pursuant to section 8 (c) of the Orange County Water District Act, only remedial expenses under section 8 (b) are recoverable – investigatory costs under section 8 (a) are not recoverable under the Orange County Water District Act. (See also *In re: MTBE Liability Litigation, supra,* 824 F.Supp.2d 524, 535 ["the plain language of the Act clearly prohibits recovery for these costs."]; *In re: MTBE Liability Litigation,* 279 F.R.D. 131, 135.)

The District has not incurred any remediation costs in the NBGPP area. Its investigatory costs are not recoverable under the Orange County Water District Act. Accordingly, the District cannot prevail on the first cause of action.

3. The District failed to establish it is entitled to contribution or indemnity from Defendants under California's Carpenter-Presley-Tanner Hazardous Substance Account Act ("HSAA"); Health & Safety Code § 25300 *et seq.*). The preponderance of the evidence establishes that the District failed to substantially comply with the NCP. In particular, the Court concludes that:

(a) The District failed to involve the public in generating its proposal as required by Code of Federal Register § 300.700 (c) (6).

(b) The District likewise failed to conduct a remedial investigation ("RI") study as required by the Code of Federal Register § 300.430 (d) (2).

(c) The District's failed to create a proper conceptual site model as required by Code of Federal Register section 300.430 (b) (2).

(d) The District's failed to obtain documentation from the lead agency documenting the basis for selecting its proposed steps of the public input as required by Code of Federal Register section 300.430 (f) (5).)

(e) The District's proposed NBGPP is not "cost-effective" as required under the NCP. Cost effectiveness is determined by comparing effectiveness to cost by evaluating: "1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility, or volume through treatment; 3) short-term effectiveness." (*Franklin County Convention Facilities Authority v. American Premier Underwriters* (6th Cir. 2001) 240 F.3d 534, 546 (citing 40 CFR § 300.430 (f) (1) (II) (D).)

4. A preponderance of the evidence supports the conclusion that the NBGPP is unnecessary and unreasonable, thus precluding the District's recovery under both the Orange County Water District Act and the HSAA. Reasonableness and necessity of the NBGPP are pertinent to the District's cause of action under the Orange County Water

District Act, as Water Code Appendix section 40-8 subsection (c) states in relevant part: "In any such act, the necessity for the cleanup, containment, abatement, or remedial work, and the reasonableness of the costs incurred therewith, shall be presumed, and the defendant shall have the burden of proving that the work was not necessary, and the costs not reasonable." During trial, Defendants argued that this evidentiary presumption set forth in section 8 (c) is preempted by CERCLA. However, the Court does not reach the question of preemption because the weight of evidence established that the NBGPP is unnecessary and unreasonable, thus resulting in judgment for the Trial Defendants, regardless of whether CERCLA preempts the evidentiary presumption contained in section 8 (c). Whether the NBGPP is reasonable and necessary is also pertinent to the District's HSAA cause of action which incorporates CERCLA's requirements that a defendant only be liable for "necessary costs of response . . . consistent with the national contingency plan." (42 U.S.C. § 9607 (a) (4) (B).)

5. No conduct by any Trial Defendant was a "but for" cause or "substantial factor" in the District's decision to proceed with the NBGPP for the reasons stated in this Statement of Decision.

6. No conduct by any Trial Defendant was a "but for" cause or "substantial factor" in District damages, for the reasons stated in this Statement of Decision

7. There is no basis for allocation to any Trial Defendant of any cost the District has incurred or will incur in the future for the NBGPP.

8. The District is not entitled to declaratory relief against any Trial Defendant.

9. Each Trial Defendant is entitled to a judicial declaration that it has no liability to the District for damages, response costs, or other costs claimed by the District, or any future costs associated with the NBGPP.

Oct. 29, 2013

KIM G. DUNNING

PROOF OF SERVICE

Orange County Water District v. Northrop Grumman Corporation
Orange County Superior Court Case No. 04CC00715

STATE OF CALIFORNIA, COUNTY OF SAN DIEGO

At the time of service, I was over 18 years of age and not a party to the action. My business address is 701 B Street, Suite 1900, San Diego, CA 92101.

On November 7, 2013, I served the following document(s):

- **NOTICE OF ISSUANCE OF STATEMENT OF DECISION**

☒ (VIA FILE & SERVE *XPRESS*) on the designated recipients maintained as of the date and time of this service on the File & Serve *Xpress* system. Upon completion of said transmission of said documents, a certified receipt is issued to the filing party acknowledging receipt by LexisNexis File & Serve's system. Once File & Serve *Xpress* has served all designated recipients, proof of electronic service is returned to the filing party.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on November 7, 2013, at San Diego, California.

Missy Palka

Missy Palka

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